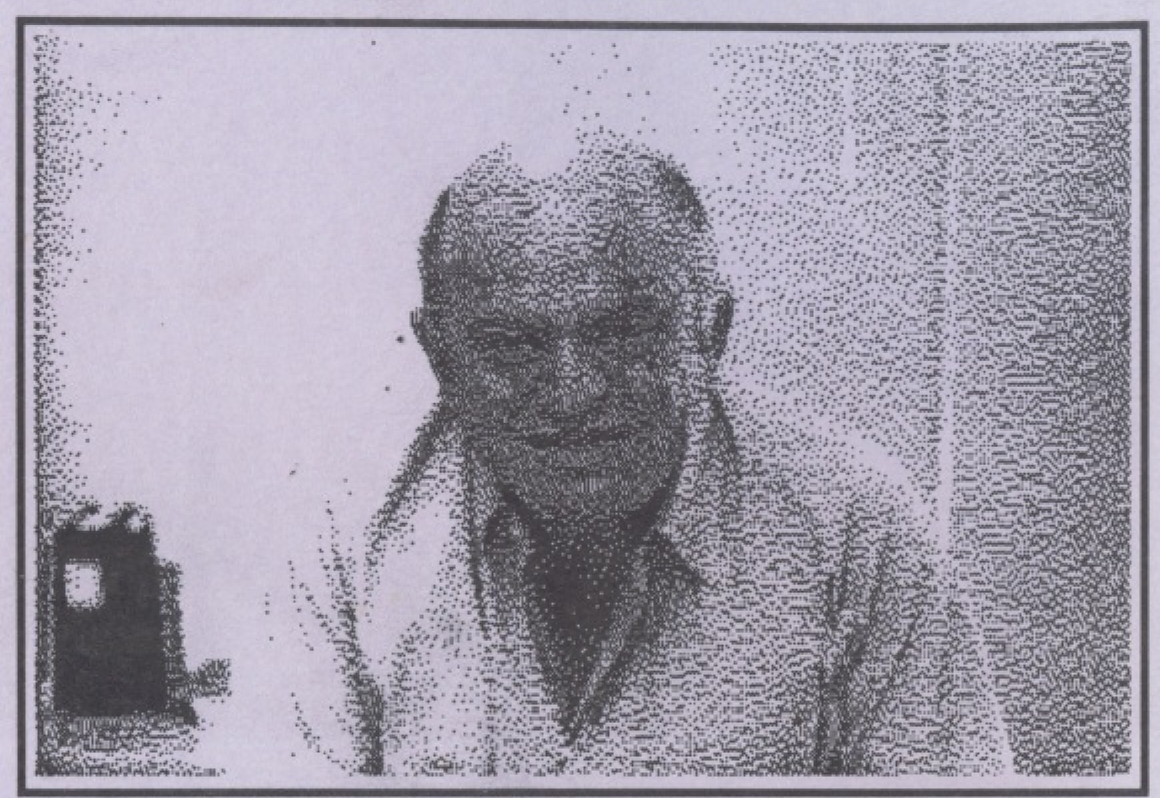
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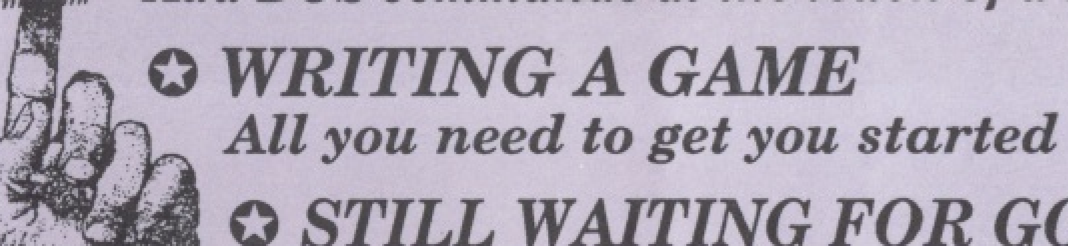
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ATARI USER

The Resource for the ATARI CLASSIC and the ATARI ST

Issue 70 - February/March 1995 £2.50

FOR THE ATARI CLASSIC



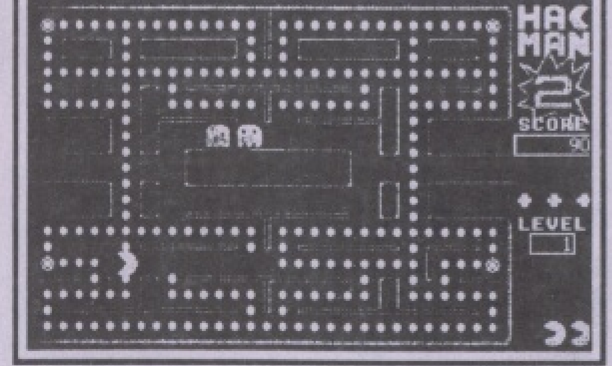
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Will MIDI become obsolete or is it possible to adapt to future standards?

PUBLIC DOMAIN *new versions of the coin-op classics*

PLUS .... TURBO TYPE-INS ... THE TIPSTER ON THE BRUNDLES ... HOOKING UP A VCR

This issue's ....

Thanks

Les Ellingham puts it all together and fills up the gaps but the real thanks goes to the following who made this issue possible

Sandy Ellingham who takes care of all the office work, advertising and mail order

For their regular contributions

John S Davison	**Stuart Murray**
Paul Rixon	**Nic Bavington**
Ian Finlayson	**Mark Stinson**
Allan J. Palmer	**The-Tipster**

For their contributions this issue

Andy Guillaume	**Ann O'Driscoll**
Les Williams	**Antony Weir**
John Young	**Robert de Letter**
Benjamin Arnold	**Andy McAtear**
Chris Thorley	**Peter Kerrison**
Pierre Andre Berthault-Meca	

Special mentions to

All those readers *who took the trouble of sending us Christmas cards with their messages of support. Much appreciated.*

Some of these folk have supported us from almost the beginning and without them we would not be here. Some are having articles published for the first time. All are to be thanked for sharing their enthusiasm with all who read New Atari User

HOW IT'S DONE

PAGE 6 shows just what you can do with your Atari. NEW ATARI USER has always been created entirely with Atari equipment, initially on the XL but more lately with a Mega ST and other stuff, who needs PC's or Macs! Hardware includes a Mega ST2 (upgraded to 4Mb), SM125 Monitor, Supra 30Mb Hard Disk, a HP Laserjet III, Citizen 124D printer, Philips CM8833 monitor, 130XE, a couple of 1050 disk drives, 850 interface, NEC 8023 printer. Principal software used is Protext and Fleet Street Publisher 3.0. Other software includes Kermit, TariTalk, Turbo Basic and various custom written programs on the XL/XE. Articles submitted on XL/XE disks are transferred across to the ST via TARITALK. Programs are coded on the XE and printed out directly for pasting in after the typesetting is completed. All major editing is done with Protext and pages are laid out with Fleet Street Publisher. Each page is output directly from Fleet Street to a HP Laserjet III which produces finished pages exactly as you see them. All that is left is to drop in the listings and photos.

Well, it's not quite as easy as that but you get the idea!

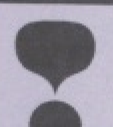
Inspiration

One of the great joys of musical inspiration is discovering new artists or new works almost by accident. This happened recently with Mike Oldfield whose latest work is The Songs of Distant Earth a title that I immediately recognised as one of Arthur C. Clarke's novels. Being a total devotee and collector or Arthur C. Clarke I had to have the CD whatever the music might be like. As it turns out it is excellent, very atmospheric, and capturing the true feeling of travel and life in worlds beyond the Earth. I'll have to re-read the book now! Among the Christmas presents was Transmitting Live from Runrig which, although there is nothing new, is as brilliant as anything they have done. Reinforced by an appearance on the TV on New Year's Eve they have to be close to being the best band around. That Hogmanay program itself was an inspiration with Mary and Frances Black, Aly Bain, Nanci Griffith and Runrig all together. Whoever managed to get that together for one of the most popular broadcasting slots of the year deserves to be put in charge of an entire TV channel. That would really be worth watching! Final inspiration this issue is Neil Young, who again was on the TV briefly over New Year, with Sleeps With Angels which I discovered at a ridiculous price in Woolworths among the half price tinsel and baubles. Not 100% inspiring but with some very good songs spoilt only by one track aptly called Piece of Crap!

CONTRIBUTIONS

Without contributions from its readers, NEW ATARI USER would not be possible. PAGE 6 welcomes and encourages its readers to submit, articles, programs and reviews for publication. Programs must be submitted on disk or cassette, articles should wherever possible be submitted as text files on disk. We seek to encourage your participation and do not have strict rules for submissions. If something interests you, write a program or article and submit it!

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'The Magazine for the Dedicated Atari User'

ISSN No. 0958-7705

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The next issue of NEW ATARI USER is due to be published on 31st March
Editorial copy date is 27th February

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A disk containing all of the 8-bit programs from each issue of NEW ATARI USER is available either separately or on subscription. Single price £2.95 per disk, a disk subscription saves you almost £8 a year. Subscription rates (6 issues)

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Editorial

The reaction to the change in size was not quite what I expected. I had expected one or two dissenting remarks yet, almost without exception, the comments where very positive with one reader writing to say that Issue 69 was the best ever! The single correspondent who made any form of criticism suggested that the price should now be reduced but that fails to take into account the cost of producing a quality magazine and the costs incurred over the past couple of years of keeping the format in its previous incarnation for as long as we could.

So most people seem happy with the new style of New Atari User (the debate about whether to call it Page 6 again has not been settled!) and it is now up to us - and you - to ensure that we can continue with a quality magazine for several more years. What we need now is a continuing supply of good quality articles and programs for us to feature and for you to share with your fellow enthusiasts. As I have said on many occasions before we need your contributions to keep up the interest in the magazine.

In some areas we are quite short of articles and programs. What we especially need are programs that are well documented. We have a vast number of programs received over the years which are good enough to be included in the magazine but which have no accompanying documentation. It is almost impossible to take someone else's programs and write about them, only the author knows how they came to be. The important thing is to write down all the information you can about any program that you submit. I have said many times before, and repeat it again, that you do not need to be a professional writer so don't worry if you can't write flowing prose. Just put down all the detail and if it needs knocking into shape then I'll do that when it is published.

We particularly need longer or more complicated programs that we can use for Disk Bonuses as these are now in very short supply. We also need shortish programs with covering articles to include in the magazine. These can be anything you want, from a routine to include in other programs, to useful utilities, fun demos or simple games. If you find it interesting and enjoyable, chances are others will too. If you can't come up with something to contribute, drop us a line and tell us what you would like to see published and we can then run a column with your 'wants' which, hopefully, will spur others to come up with the articles and programs.

One of the most strange things to have happened in the past three or four months is that many of you have stopped writing. Since just before Christmas we have received fewer letters for Mailbag, fewer Tipster hints and fewer Contact notices than ever before. What's happening? Have all the regular correspondents run out of things to write? Have you all been too busy? Whatever the reason please get your pens or word processors out again and write to us. Mailbag is an important part of the magazine that can keep people interested and spur them on to new things so let's have your reaction to letters published and new subjects raised for others to react to.

The drop in the Contact column has bee quite amazing but since many of the past notices were from people selling their 8-bit systems I am not really bothered. The more people who hang on to their Atari Classics the better! Perhaps the drop coincided with the decision to charge for the service, but that has now been reversed and the column is free to subscribers. Use it to get in touch with your fellow enthusiasts.

That's all - now let's hear from you with all those great programs and articles which I know are out there just waiting to be shared with others.

Les Ellingham

TURBO TYPE-IN

TICK-TOCK!

Save the expense of buying a clock for your computer room, just turn your Classic into a neat timepiece! Although this is just a straightforward simulation of an analogue clock which has little direct use, the routines may well prove useful for timing routines within your programs.

Once the program is up and running, you just type in the start time in twelve hour format and, after the screen has been setup, just press any key to start the clock ticking. The program waits until the correct amount of jiffies at location 20 (RTCLOK byte 3) have passed, then updates the 'second' hand which in turn updates the 'minute' and 'hour' hands. An array of Sin and Cos values is used for extra speed.

The time of one "program second" is set at SPEED on line 20. This is the amount of jiffies to be counted before the 'second' hand is to be updated, and is set to 50 for a standard U.K. XL. Those in the U.S.A. etc. will have to lower or raise this value to suit. Notice that seconds and minutes are increased in steps of 6, this is because they are angles not real values and are calculated from the entered time. (i.e. 360 degrees/60 seconds or minutes = 6) The 'hour' hand is moved at the same time as the 'minute' hand so that it moves during the hour, if this was not so the 'hour' hand would skip from hour to hour giving a rather jerky movement.

by Andy Guillaume

```
EX 1 REM ##################################
SZ 2 REM #        ANALOGUE CLOCK          #
SG 3 REM #       by Andy Guillaume        #
HB 4 REM # ------------------------------ #
YE 5 REM # NEW ATARI USER - FEB 1995      #
FC 6 REM ##################################
NM 7 REM
SC 20 DEG :DIM CS(366),SN(366):GRAPHICS %
   0:SPEED=50
NO 30 FOR N=%0 TO 366:POSITION %0,%0:? 36
   6-N;" ":CS(N)=COS(N):SN(N)=SIN(N):NEXT
    N
FX 40 HMF=0.5:INPUT "Enter Hours,Minutes"
   ;HR,MN:SEC=%0:MIN=MN*6:HOUR=(HR*30)+((
   MN DIV HMF)/4)
KB 50 GRAPHICS 8+16:POKE 709,10:POKE 710,
   %0:COLOR %1:CX=159:CY=95:SX=CX:SY=CY-3
   0
IA 60 HHX=CX+(SN(INT(HOUR))*50):HHY=CY-(C
   S(INT(HOUR))*50):MHX=CX+(SN(MIN)*70):M
   HY=CY-(CS(MIN)*70)
HJ 70 FOR N=90 TO 93:CIRCLE CX,CY,N:NEXT
   N:FOR N=%0 TO 359 STEP 6:PX=CX+(SN(N)*
   80):PY=CY-(CS(N)*80)
RR 80 PLOT PX,PY:IF (N MOD 30)=%0 THEN FO
   R I=%0 TO %2:CIRCLE PX,PY,I:NEXT I
MH 90 NEXT N:PLOT CX,CY:DRAWTO SX,SY:PLOT
    CX,CY:DRAWTO HHX,HHY:PLOT CX,CY:DRAWT
   O MHX,MHY:GET N:POKE 20,%0
WT 100 SS=PEEK(20):IF SS<SPEED THEN 100
AH 110 POKE 20,SS-SPEED:SEC=SEC+6:COLOR %
   0:PLOT CX,CY:DRAWTO SX,SY:SX=CX+(SN(SE
   C)*30):SY=CY-(CS(SEC)*30)
UP 120 COLOR %1:PLOT CX,CY:DRAWTO SX,SY:P
   LOT CX,CY:DRAWTO HHX,HHY:PLOT CX,CY:DR
   AWTO MHX,MHY
DI 130 IF SEC<360 THEN 100
DA 140 SEC=%0:COLOR %0:PLOT CX,CY:DRAWTO
   MHX,MHY:MIN=MIN+6:MHX=CX+(SN(MIN)*70):
   MHY=CY-(CS(MIN)*70)
BG 150 COLOR %1:PLOT CX,CY:DRAWTO MHX,MHY
   :HOUR=HOUR+HMF:IF HOUR<>INT(HOUR) THEN
    170
LI 160 COLOR %0:PLOT CX,CY:DRAWTO HHX,HHY
   :HHX=CX+(SN(HOUR)*50):HHY=CY-(CS(HOUR)
   *50)
WI 170 COLOR %1:PLOT CX,CY:DRAWTO HHX,HHY
BT 180 POKE 77,%0:IF MIN>360 THEN MIN=MIN
   -360
IE 190 IF HOUR>360 THEN HOUR=HOUR-360
LH 200 GOTO 100
```

Mailbag



Welcome to 1995! Hope you've all adjusted to the new format NEW ATARI USER. Let's have some letters about this please! As it stands (perhaps due to Xmas and New Year celebrations) we haven't received much in the way of contributions for MAILBAG this time, so this looks as though it's going to be my shortest column. Please make it your New Year's resolution to write more letters - if you don't write, how can we judge if the Classic Atari is still holding your interest?

So let's boldly go where no letter column has gone before and dig in to this month's postal missives ...

Allan J. Palmer

MAGAZINE FORMAT

Editor's note: We actually received many letters on the subject of the future format of the magazine than appear here, and thanks to everyone who wrote, but these were not passed on to Allan as many of the comments were similar and I did not think a whole Mailbag of nearly identical letters would be very interesting! We have had a good number of comments since Issue 69 went out, mostly on the telephone, and all bar one have been most favourable. Check the editorial this issue for more detail. Back to Allan ...

Brad Rogers from Southampton sent these thoughts before the new format appeared: "Obviously the magazine will remain as a subscription only publication. If printing the magazine in A5 format is cost effective, then so be it. However, I would prefer to see listings left in the magazine (despite being a disk subscriber), so my preference would be for A4 format, but cheaper paper. Newsprint would be too nasty to contemplate though! I would like to see the order form kept separate from the magazine, since I loathe cutting magazines. Yes, I know about photocopiers, but not everybody has free access to one. If the order form were just a blank pro-forma, rather than a unique one, then there would be no need to print new forms for every issue. This implies that I have no objection to putting the list of new PD disks in the magazine. The name? My preference is for 'PAGE 6', since that's how I still refer to the magazine. ST coverage? If the past is anything to go by, it seems to me that Page 6/NAU will be the only mag providing coverage."

Also before getting issue 69, Frank Atkin from Gosport, Hants wrote: "...re the A4/A5 format, it is the contents that matter, and if it to all our benefit go to A5, if not then keep to A4. TWAUG has an A5 format ... good value for money and like NAU is very much looked forward to."

❢ *Thanks for your thoughts Brad and Frank; what did you think of issue 69?*

AU TOOLKIT

Brian Arnold of Worthing Sussex has a plea for help: "Has anyone managed to transfer to disk the old Atari User TOOLKIT tape? I have had no success at all, even by using TRANSDISK IV. I end up with a screen full of garbage, and get the same result if I try direct loading of the tape."

❢ *I am sure the Atari User Toolkit was available on disk so it should work.*

POWER PACKS

From Southampton, Brad Rogers provides (in response to enquiries in issue 68) this information about power packs used by Atari 8-bits:

"This list is by no means exhaustive, but for what it's worth, here goes

Description	Voltage	Current	AC/DC
130XE Computer	5V	2.5A	DC
410 Tape Deck	6V	1.8A	DC
800 Computer	9.5V	1.5A	DC
850 Interface	9V	3A	AC
1050 Disk Drive	9V	3A	AC
XEP80 Display Card	9V	0.5A	DC
XF551 Disk Drive	9V	3A	AC

So, M. Tomlin is using a suitable PSU for his disk drive. It should be stated that the above are minimum requirements, and meatier PSU's can't do any harm. Further, it may be inferred from the above list that all Atari 8-bit disk drives use the same power unit. If this should prove not to be the case, don't blame me!"

❢ *Thanks for the information Brad; can anyone provide further update to this table?*

8-BIT VIRUSES?

Self-styled W.A.C.O., M. Tomlin of Basildon in Essex: "...was wondering if any Atari classic user has had trouble with a computer virus? I would like to ask the readers out there for input on this one as I have never seen any 8-bitter say they have."

❢ *I'm not aware of any viruses existing on 8-bit machines, but I have the vague feeling of somebody writing on this subject in the dim and distant past. Can anyone comment on the subject? [The Compute! book Computer Viruses had a whole section on the Atari 8-bit but the viruses did not appear to be as serious as on other computers. Unfortunately the book is now out of print. I have never come across any virus similar to those common on the ST but they do, apparently, exist! Ed.]*

THUNDER ISLAND

Brian Arnold of Worthing, West Sussex feels "Thunder island" in issue 68 was "...a very good type-in, but I found it something of a nuisance to have to keep the article handy in order to refer to the Game Options table with its many levels. I therefore thought it would be a good idea to have this table on the title screen, for ease of reference. I renamed LANTERN as LAMP, and with a good deal of abbreviation managed to get it all in. Lines 340-370 should be re-typed as shown below. No other changes are needed. I hope others will find this useful.

```
340 POS. C10,C4:? "ONE PLAYER:LEVEL"
351 POS. C4,C6:? "OPTION FOR PLYERS:SELECT FOR LEVEL"
352 POS. C4,C8:? "1 PLAYER:NIGHT  2 PLAYER:NIGHT"
353 POS. C4,C9:? "LAMP ESYmedHRD LMP1 LMP2 ESYmedHRD"
354 POS. C4,C10:? "Lge    1  2  3  Lge  Lge   1  2  3"
355 POS. C4,C11:? "Med    4  5  6  Lge  Med  10 11 12"
356 POS. C4,C12:? "Sml    7  8  9  Lge  Sml  13  14 15"
357 POS. C4,C13:? "1 PLAYER:DAY   Med  Lge  19  20  21"
358 POS. C4,C14:? "      10 11 12  Med  Med   4  5  6"
359 POS. C4,C15:? "2 PLAYER:DAY    Med  Sml  16  17 18"
360 POS. C4,C16:? "      28 29 30  Sml  Lge  22  23 24"
361 POS. C4,17:? "                Sml  Med  25  26  27"
362 POS. C3,18:? "[START TO PLAY]Sml  Sml   7   8   9"
365 SKILL=C1:LEVELP=C1
370 POS. 27,C4:? SKILL;:FOR X=C1 TO 100:NEXT X
```

Editor's note: You will have to experiment with the spaces to get the table correct. Using a typeface like this means that the characters have proportional widths so do not match exactly with what will appear on screen.



MONITOR FOR AN XL?

Peter Foote of Yeovil, Somerset would like to thank "...all those who contribute to New Atari User. The articles provide a valuable service to those of us who are still in the dark." *Thanks Peter, it's gratifying to know that people do appreciate other people's efforts. Peter goes on to report that his colour TV used with his Classic Atari is now defunct and is* "...contemplating the purchase of a monitor. What type of monitor can be connected to the XL computer? Can you suggest any models and where they can be acquired from?"

Right, let's here it from the assembled masses - what sorts of monitors are used out there? (Don't forget Peter you'll need to make a cable that provides the appropriate connections - something I'm sure we've covered in previous issues of the magazine).

EXPANDING THE ATARI

Peter Foote of Yeovil also asks "...back in issue of 32 of NAU, a column called 'Expanding Your Atari' was started by Mark Fowler. Was the series ever completed or was it held over?"

I think, Peter, that no further articles were forthcoming, and there was concern about the safety aspects of connecting an Atari to other electrical equipment. Perhaps our esteemed Publisher can add a few words... [The major problem was that there were a number of errors in the articles which one or two readers brought to my attention. As I have never been a hardware buff, there was no way of checking whether the remaining articles were accurate so I decided to give the series the chop. Better that than have someone blow up their beloved Atari!]

DISK BOXES

In reply to queries in previous issues about the availability of 5¼" disk boxes, Kevin Cooke from Exeter, Devon reports that he has found a good source in Dean Garraghty - you should find a DGS advert in any recent issue of NAU with contact details.

VIDEO CONNECTIONS

In the last issue, I asked if anyone had ideas about using a Classic Atari connected to a video recorder. Kevin Cooke (of Exeter Devon, again) responded as follows: "I do not own the Video Title Shop program at present but hopefully I'll get the chance to try it out in the future. However, the video link can also come in handy when playing games and trying to write the solution for the Tipster. By playing the game through (while recording it) and then watching it from the video at your own pace, you can see exactly what moves you made, making it easier to draw maps and write solutions. I was also intending to use the link to create an advertisement as part of my GCSE coursework in my Media Studies lesson at school but, unfortunately, I didn't get around to making the cable until after the hand-in date. I may still use the link for my final project though and, if I do, I'll try to send you a copy of it." Thanks for the comments, Kevin, and good luck with your project.

LIGHT GUN GAMES

Following Jason Kendall's enquiry about light gun games for the Classic Atari, Kevin Cooke (still of Exeter, Devon) sends these notes: "Jason should perhaps take a look at Patrice Robert's article in NAU issue 54 detailing CROSSBOW, BARNYARD BLASTER, CRIME BUSTER, LIGHT GUN BLASTER and GANGSTER VILLE. I also own ALIEN BLAST, a Space Invaders clone that works with the light gun. ALIEN BLAST is available from Dean Garraghty. BARNYARD BLASTER, CROSSBOW and CRIME BUSTER may still be available from Derek Fern's Micro-Discount, and LIGHT GUN BLASTER is available on Page 6's PD Library disk Pedrokko 4. The only game I have yet to track down is GANGSTER VILLE - does anyone know where it is available from?"

Once again, Kevin, thanks for your input!

Well, I'm afraid that's it - that's ALL the mail received in time for this issue (and even now I'm running past Les' original deadline - so you might not actually see this in issue 70 - and if you don't you can't actually be reading this can you? Hmmmm... is this the first case of a Classic Atari time paradox? Send for Agents Mulder and Scully from the X-Files? Nah, knowing our luck we'd probably end up with Mr. Blobby and Danny Baker!!!

Don't forget to write...

FOR THE FUTURE?

What would you like to see in future issues of New Atari User? Are there specific tutorials you would like to see? Is there a program that you have never seen before on the Atari or one which might help you with a particular task? Perhaps you are stuck on a section of a program that you have been writing for years. If that's the case someone reading New Atari User could help you.

One idea we have had for a while is a sort of programmer's clinic or 'How do they do that?' in which readers could write in with questions for simple programming routines and others could provide the answers. For example how to you write a timing routine that continues counting as you input text from the keyboard? How can you disable all keys except Y and N? How do people move the directory on a disk so that it can't be read with DOS?

There are hundreds more questions like these and we could run them as an extension of Mailbag by publishing a selection of programming questions, followed the next issue by, hopefully, some of the answers. Whatever the question, someone, somewhere knows the answer.

That's one idea for a future column but there must be many more so write in and tell us so we can give you what you want. The address is below.

Air your views on all things Atari or help your fellow users with their queries - even ask for help yourself. It's all interesting, if only you write it down. Here's the address:

MAILBAG
NEW ATARI USER
P.O. BOX 54, STAFFORD
ST16 1TB



Ain't it better to write to NAU?



Your regular Tipster was last seen buried beneath a mound of Christmas pudding laced with sherry, brandy, rum and other liquids that help to keep Christmas merry. By the time he emerges he'll be trying to get that Falcon of his to perch on his wrist! Luckily we can turn this issue's column over to a guest Tipster - Mr. Les Williams - who provided enough feedback on Issue 68's tips to fill the column. Your regular Tipster will be back next time - provided of course that you keep those hints and tips coming - but meanwhile its goodbye to him and hello, and thanks, to Les.

Right, let's go! Check out Issue 68 of New Atari User and we'll tie up a lot of loose ends.

THE BRUNDLES ✪ ✪ ✪ ✪ ✪

On my disk there is no problem with Level 61 i.e. it scrolls to the left to reveal the home. I agree with Peter's comments about Level 60 -if you Nuke'em the lock-up is even more spectacular than exploding just one Brundle! As a follow-up here are most of the other codes.

61	HALLE	71	FORCE	81	BOHEM	91	QPONG
62	MUSIC	72	SUDAN	82	ETHIC	92	FLOOR
63	RADIO	73	CRUEL	83	SAMBA	93	BORIN
64	PSYCH	74	SONIQ	84	ORDER	94	INTER
65	SOUND	75	TUTOR	85	CENTS	95	PRIDE
66	CODEX	76	STYLE	86	POUND	96	BLACK
67	HEART	77	ELTON	87	OCEAN	97	EPROM
68	CHILD	78	RESET	88	TEKNO	98	MICRO
69	WALLS	79	BOARD	89	DJDAG	99	?
70	JOYCE	80	FRESH	90	SPOON	100	?

Level 98 is impossible with the 60s time limit! Even if the '-' key is depressed immediately the START key is depressed, and held down until the fall rate is 99, the last drop takes 35s. Since it then takes 35s for the Brundle to walk from the drop-zone to home, a minimum time limit of 70s is required i.e. 75s-80s is more realistic.
Any known fix with a disk editor?-

The WORM IN PARADISE

Start here . . . .

Coloured tile system.

The ET system colour coding, and how to use the system, is a stinker!
The colour coding is based on the resistor colour code (if the player is not familiar with this code I don't know how it could be interpreted) .
The tile coding is therefore:-

BLACK=0	BROWN=1	RED=2
ORANGE=3	YELLOW=4	GREEN=5
BLUE=6	VIOLET=7	GREY=8
WHITE=9		

When you go into the ET system it will be seen that there are 7 colour codes. The first colour shows you which system you are in (there are systems around the ET Roundabout) e.g. system 0 (Black) is the southerly one, system 3 (Orange) is the easterly ☞

Once you have verified that you are in the required system, the first colour can be ignored. When you arrive at the walkaway of the required system, go N 12 times to get to the ET hub (there is a quicker way, but I will leave it for you to find!). In each system there are 1,000,000 locations, i.e. 4,000,000 in all of which only 6 have to be visited! I have found that the only locations you need to use are the Easterly ones shown in the table below, the numbers being the resultant decoded colours.

ET	Hub	0*	531441	Ignore
Inner	Ring	0	177147	354294
Inner	Ring	0	59049	118098
	Ring	0	19683	39366
	Ring	0	6561	13122
Central	Ring	0	2187	4374
Central	Ring	0	729	1458
Central	Ring	0	243	486
	Ring	0	81	163
	Ring	0	27	54
Outer	Ring	0	9	18
Outer	Ring	0	3	6
Walkaway		0	1	2

* = Start point

Notes:-
(1) To get to 13122 go S.S.S.S.E.E
(2) To get to 2187 go S.S.S.S.S.E
(3) The sum of the locations visited must equal the required address e.g. S.S.S.S.E.E.S.E.S.S.S.S.S.S.S will get you to the door of address 15309 i.e. 13122+2187.
(4) For directions S.E. you can use SE.

A worked example.

Assume the address you require has been given the colour code BROWN GREY BLACK GREY BROWN BLUE RED.
Decoding gives 1808162 i.e. the address is 808162 in system 1. Go to the ET hub and work out the required directions as follows:-

	808162		430
E.	-531441	SE.	-243
	---------		------
	276721		187
SE.	-177147	SE.E.	-162
	---------		------
	99574		25
SE.	-59049	S.SE.E.	-18
	---------		-----
	40525		7
SE.E.	-39366	SE.E.	-6
	---------		---
	1159		1
S.S.SE.	- 729	SE.	-1
	-------		---
	430		0

Now go S, and you will then enter the required address - I hope!
WARNING - If you start the adventure anew all the addresses will have been changed!

Curfew

The only purpose I can remember for the curfew is to swell the coffers of the local Fuzbots and to make the player bankrupt. If this happens you are slung in jail and the key is then thrown away! If you spend your first night at your home in bed when the curfew begins you earn 40 points. It is also to your advantage to watch the TV - many useful commercials are broadcast. (SAY HOME on any road and you get a free ride home!) . Note your colour coded address and, by using the earlier explanation of the ET system, see if you can find your own way home from the ET hub. I hope you looked in the criminal's wallet before handing it in!

End here

but turn the page for more ☞

RETURN TO EDEN

Take the LOG to the island, leave the DRY BULB on the ground and SQUEEZE LOG.

HEY! HEY! It's The TIPSTER

Fooled Ya!

It's only some help needed!

HELP ME!

Now it is my turn to seek help for an Adventure please. In **LEATHER GODDESSES OF PHOBOS**

(a) Where can I find the Photo of Jean Harlow?

(b) How do I get past Thorbast when outside the spaceship (even when I get his sword I can't do it).

???

IT'S OVER

And so ends this guest edition of The Tipster. The next one is up to you. Christmas is over, this is 1995 and we need another whole year of tipping, hinting, mapping and solving from you lot. Dig out your favourite games and tell us how you crack them. Dig out you not so favourite games, work out where you got stuck, and ask for help - someone knows the answer.

Write it all down - send it all in. There were whispers that The Tipster was going to take it easy in 1995 but that's not the case is it? Bury him with mail - start writing now!

Send it all to:

THE TIPSTER
NEW ATARI USER
P.O. BOX 54
STAFFORD
ST16 1DR

WRITING A GAME

Programming a game of your own can be quite complex but it need not be difficult. Ann O'Driscoll shows how to get started with a simple idea

Writing your own computer game is not as difficult as some people imagine. The trick is to start simple and build it up from there. This article explains how programming a small, uncomplicated maze game might be approached. While it doesn't have "extras" like user defined graphics, it does have some of the features found in "real" games like sound, scoring and a reason for playing. In other words, the framework is there for the program to be developed into your own personalised game.

In approaching any program from scratch, it's usually a good idea to jot down a few ideas on what you want the program to do, before you go near the keyboard. This would include deciding on the type of game screen you want, whether movement routines should use the keyboard or joysticks and, of course, the overall purpose of the game itself. For instance, in a maze game the starting point might be a character who can't move through walls, but after that a number of scenarios are possible: Should something follow the character, so that he has to find the way out quickly? Or perhaps he should collect "treasure" from certain places within the maze? Should there be a time limit? What happens when the player wins or loses?

Let's assume that, following an analysis like this, we decide that our game will have the following features: The "action" will take place on a Graphics 1 screen. The "#" symbol will be used for the walls of the maze and the inverse "*" symbol to represent the maze character. We will put "dots" or full stops on all the places in the maze where there is not a wall, and the character, moved with the joystick, must move over or "eat" the dots. The game will end when all the dots are gone. A timing routine will be included to give some incentive to play, and we'll put a "Play again" option in too. Next, we'll put these ideas into a program, step by step:

STEP 1 - Build the Maze

The maze shape is defined by the DATA statements at **LINES 800-940**, with each DATA line representing a separate row of the maze. The "#" symbol is used for the walls and the "." for the spaces in between. Because the maze is symmetrical, the first line is the same as the last, the second is the same as the second last, and so on. Our maze is 15 rows long (15 lines of data) and 15 columns wide (15 character spaces across for each line). This size just about suits the Graphics 1 screen (20 long by 20 across); we might

change the maze size if we used another graphics mode.

LINE 25 of the program DIMensions a string called W$ which is big enough to hold a single row of the maze data. **LINE 50** puts the computer into Graphics 1 mode (and turns off the cursor) and **LINE 60** places the maze data on this screen: The "RESTORE 800" command simply tells the computer to start looking for the data at **LINE 800**. The FOR NEXT loop reads the first row of data (at LINE 800) and prints it on the screen beginning at column 2, row 2. It then reads the next row (LINE 810) and prints this underneath at column 2, row 3 and so on until all the data has been read.

STEP 2 - Create the Eater and move him

Our "eater" is very simple - an inverse "*" character which we decided on earlier. **LINE 30** sets up a string called A$ to hold the character. This means that, if we want to show the eater on the screen, we can use "? #6;A$" to do so. **LINE 80** sets the initial co-ordinates or "starting point" for the eater at the middle of the maze (column 9 and row 9) and prints it on the screen.

In BASIC games, simple animation or movement effects can be achieved by printing a character, rubbing it out and then printing it again at a new position. "Rubbing out" either means putting back the old background or something else. In this program, we want our character to "eat" the dots as he passes over them, so we will print a space when he leaves. Also, if he moves into a blank area to begin with, we will "erase" him when he goes by reprinting the space again. **LINE 35** sets up a string called B$ to hold one blank character to be used in the rubbing out routines. Now

```
EX 1 REM ###############################
ZS 2 REM #         WRITE A GAME        #
VK 3 REM #      by Ann O'Driscoll      #
HX 4 REM #          A MAZE DEMO        #
HC 5 REM # --------------------------- #
YF 6 REM # NEW ATARI USER - FEB 1995   #
FD 7 REM ###############################
NN 8 REM
WW 25 DIM W$(15):REM Maze wall
ZL 30 DIM A$(1):A$="*":REM Eater
XV 35 DIM B$(1):B$=" ":REM Blank space
BO 40 BT=100:REM Initial time to beat
CZ 49 REM  SET UP GAME SCREEN
CA 50 GRAPHICS 1:POKE 752,1
GG 59 REM -- DRAW MAZE WALLS
QV 60 RESTORE 800:FOR N=0 TO 14:READ W$:P
   OSITION 2,N+2:? #6;W$:NEXT N
OK 69 REM -- PUT IN TIME TO BEAT
WW 70 POSITION 2,0:? #6;"best time ";BT
IO 79 REM -- PUT IN EATER
YJ 80 X2=9:Y2=9:POSITION X2,Y2:? #6;A$
CW 89 REM -- WAIT FOR KEYPRESS
BG 90 ? CHR$(125);"↓  START  = Play  OP
   TION  = End"
PE 100 IF PEEK(53279)<>6 AND PEEK(53279)<
   >3 THEN 100
QT 105 IF PEEK(53279)=3 THEN GRAPHICS 0:P
   OKE 752,0:CLR :END
TK 109 REM -- BEGIN GAME SOUND
XW 110 FOR P=100 TO 0 STEP -4:SOUND 0,P,1
   0,12:NEXT P
IA 114 REM -- SET TIMER
KQ 115 ? CHR$(125):POKE 19,0:POKE 20,0
CO 119 REM  GAME LOOP
JZ 120 SC=0:GOTO 250
ML 149 REM -- JOYSTICK ROUTINE
UW 150 S=STICK(0):IF S=15 THEN 150
OP 160 X2=X2+(S=7 AND X2<16)-(S=11 AND X2
   >2)
BK 170 Y2=Y2+(S=13 AND Y2<16)-(S=14 AND Y
   2>2)
ZD 180 POSITION X1,Y1:? #6;B$:REM Rub out
    old position
TG 190 LOCATE X2,Y2,Q:REM locate column,
   row, ascii code
TR 200 IF Q=35 THEN SOUND 0,150,10,8:FOR
   D=1 TO 20:NEXT D:SOUND 0,0,0,0:X2=X1:Y
   2=Y1:GOTO 250:REM Hit wall
WZ 210 IF Q=46 THEN SC=SC+1:REM Hit dot
TM 250 POSITION X2,Y2:PRINT #6;A$
AA 260 IF SC=110 THEN 300
JN 270 X1=X2:Y1=Y2
OA 280 GOTO 150
OG 299 REM  GAME OVER : NO DOTS LEFT
WI 300 T=INT((PEEK(19)*256+PEEK(20))/50)
OR 310 P=120:IF T<BT THEN BT=T:P=12
XI 320 POSITION 12,0:? #6;BT;"  "
ZQ 330 FOR N=1 TO 3:SOUND 0,P,10,8:FOR D=
   1 TO 40:NEXT D:SOUND 0,0,0,0:NEXT N
RK 340 GOTO 60
YL 799 REM  DATA FOR THE MAZE
ZJ 800 DATA ###############
OY 810 DATA #.............#
JM 820 DATA #.###.###.###.#
AS 830 DATA #.#.........#.#
MK 840 DATA #...#.#.#.#...#
JS 850 DATA #.####.#.#.####.#
AY 860 DATA #.....#.#.....#
VM 870 DATA ######.###.###.######
BC 880 DATA #.....#.#.....#
KA 890 DATA #.####.#.#.####.#
MD 900 DATA #...#.#.#.#...#
AP 910 DATA #.#.........#.#
JN 920 DATA #.###.###.###.#
PD 930 DATA #.............#
ZS 940 DATA ###############
```

we can use "? #6;B$" to indicate that the eater has left a particular screen position.

The program uses X2 and Y2 to show the current column and row positions of the eater and X1 and Y1 to show the previous or "old" column and row positions. Moving the joystick right or left updates the X2 position; up and down movements update the Y2 position. X2 and Y2 must keep within the maze limits too: Neither X2 or Y2 can fall below 2 or go above 16 because this is where we've put our maze on the screen. The compact routine at **LINES 150-170** takes care of all of this. First, the computer is told to stay at **LINE 150** if the joystick is stationery (S=15). **LINE 160** adds 1 to the value of X2 if the joystick is pushed right (S=7), provided X2 isn't at the maximum value. The same line subtracts 1 from the value of X2 if the joystick is pushed left (S=11), provided X2 is above the minimum. **LINE 170** follows the same principles for up (S=14) and down (S=13) movement, and updates Y2 accordingly.

LINE 250 of the listing prints the eater at the new X2, Y2 position. **LINE 270** then turns these co-ordinates into the "old" co-ordinates so that the eater may be rubbed out, and **LINE 280** sends the program back to get the next X2 and Y2 values. At this stage we are well on the way to completing the movement loop routine, which now looks like this:

LINE 150-170 Update X2 and Y2
LINE 180 Rub out at X1, Y1
LINE 250 Print eater at X2, Y2
LINE 270 Set X1 = X2 and Y1 = Y2 (i.e. store last positions)
LINE 280 Go back to LINE 150

STEP 3 - Put in the START Routine

As LINE 80 has our eater stuck in the middle of the maze, now might be a good time to move him into the game by introducing the START routine. **LINE 90** clears the text window and invites the player to press the START or OPTION console keys. **LINE 100** waits until one or other is pressed. **LINE 105** ends the game if you press OPTION, otherwise the main play loop begins. **LINE 110** has a short sound routine to get the player ready and then **LINE 120** "catapults" the eater into the middle of the joystick movement routine (to LINE 250). If you test the program at this stage you will find that, while the eater moves quite well, it erases everything it passes by - including the maze walls. Also, while it eats the dots, the "game" goes on forever, even when the screen is cleared. We can take care of these problems if we check the eater's screen co-ordinates when he moves:-

STEP 4 - Detecting Screen Positions

Having updated the screen co-ordinates at LINES 160-170 and rubbed out the old location at LINE 180, we next find out what is at the eater's new screen position. Obviously, we can't have him walking through the walls of

the maze. We also want to know when a dot is "eaten". The Atari uses the LOCATE command to give the ASCII code for the character residing at particular screen co-ordinates. It takes the form

LOCATE column, row, ASCII code

All the ASCII codes are given at the back of your computer manual. The ones we're interested in are the hatch symbol (ASCII=35) for the walls and the full stop symbol (ASCII=46) for the dots.

LINE 200 checks to see if the new position contains maze wall (Q=35). As moving into a space occupied by the wall is not allowed, the computer gives a "disapproving" sound. Next, the "old" or last co-ordinates are restored - in other words, the computer is told to forget about the proposed move and the wall co-ordinates are dropped. Then the program is sent on to LINE 250

LINE 210 checks to see if the new position contains a full stop (Q=46). Our game specification says the asterisk character must "eat" or move over all the full stops, so we'll need to keep a track of when he meets these. The simplest way to do this is to have a counter or score which goes up by 1 when X2, Y2 hits a dot. LINE 210 does this, having set the score at 0 before the game started (LINE 120). LINE 250 prints the eater over the dot. There are 111 dots in the maze altogether. When the game starts, our eater is 'sitting' on a dot in the middle of the maze. This means he must eat 110 dots to clear the maze and end the game. **LINE 260** sends the program to the game over routine when SC reaches 110. Otherwise, the X1 and Y1 co-ordinates are set up and the joystick movement loop continues, as explained above in Step 2.

STEP 5 - Put in a Timer

As it stands, the game isn't much good because, even though it works, there's no incentive to play - there are no "baddies", there's no "high score", and it doesn't really matter if you take all day to clear the maze. With just a few extra lines of programming, we can rectify this by introducing a timing routine:

LINE 115 sets two of the Atari's "realtime clock" registers (at memory locations 19 and 20) to zero before the game starts. **LINE 300** reads them at the end to see how many seconds have elapsed - The contents of memory location 20 go up by 1 every 1/50 seconds and, when it reaches 255 (after 256/50 or 5.1 seconds) it nudges memory location 19 up by one, goes back to 0 itself and starts incrementing again. It follows that the value in memory location 19, found by PEEK(19), tells us that that location 20 has gone from 0 to 255 that many times. Each time took 256/50 seconds, so PEEK(19) X 256/50 plus PEEK(20)/50 gives us seconds taken to complete the game. This is what LINE 300 calculates. **LINE 310** compares this value with the previous "Best Time" (BT) and updates if appropriate.

STEP 6 - Final Routines

Now all that remains is for us to put in the "game over" and "play again" options. **LINE 330** looks after the two possible "game over" sounds. The second value in the Atari's sound command controls the pitch. The game uses one pitch (P=12) when the previous best time is beaten and a different pitch (P=120) otherwise. These values are set in LINE 310. The initial time to beat is set at 100 in LINE 40. Finally, **LINE 340** directs the program back to LINE 60, the maze is redrawn and the computer waits for START (new game) or OPTION (finish up) to be pressed.

.. and that's about it. Additional features like a title screen, obstacles which prevent a clear run through the maze, or perhaps a "level 2" if "level 1" is completed within a certain time - may all be incorporated once the basic building blocks are in place.

DISK BONUS

AN ADVENTURE DOUBLE!

THE SINCLAIR EXPERIMENT

by Antony Weir

Somewhere in the heart of England, the notorious professor Sinclair works on his amazing discovery - Chronokinetics - that's time travel to you and me. He has threatened to transport the Earth back to before the beginning of time if his demands are not met. Realising that this would mean the resurrection of the ZX-80, the WSO (World Security Organisation) sent you and a certain 'Miss X' to bring Sinclair to justice and destroy his machine. You were both caught by Sinclair's hoods. You have managed to escape, but Miss X is still a prisoner. You find yourself alone and unarmed in an unfamiliar town, with your companion to rescue and a mission still to complete...

The Sinclair Experiment is the usual type of text adventure with the standard two word vocabulary. Nouns can be shortened to just the first four letters but note that verbs must be typed in full. To play, simply boot the disk with Basic but ensure that the disk is left in the drive as the program accesses various files during play.

There is both a Cheat mode and a Help facility. The cheat mode enables you to go direct to certain locations. While holding CONTROL, type LOC. Press ESC and type ESC CONTROL =, followed by a space. Then type in the number of the location you wish to go to.

There is a separate HELP program that can be called up from the main game. To use it, first save your current status (SAVE GAME). Now press P at the location where you need help. Remember the number and type HELP. You will see a menu giving you three types of clue. Give your location number and you will receive some sort of hint as to what to do next. You can then go back to the menu and select option 6 to return to the main program. Restore your position (LOAD GAME) and you can carry on.

SPACEWRECK

by John Young

In this adventure you find yourself marooned on a wrecked spaceship drifting in an asteroid belt, your objective is simply to get yourself rescued.

Commands can be either one word or verb-noun, and you need only type the first four letters of each. The state of play can be saved to disk, this being advisable before doing anything that may be dangerous. The following is a list of often-used commands, but quite a few others are possible.

ONE WORD: NORTH (N), EAST (E), SOUTH (S), WEST (W), UP (U), DOWN (D), SAVE, LOAD (RESTORE), INVENTORY (I), QUIT (Q)

VERB-NOUN: TAKE (GET), DROP (LEAVE), EXAMINE (LOOK), OPEN, CLOSE, FIT (FIX), REMOVE, GIVE

If your attempt to communicate is not understood, try rephrasing it, and remember that all valid commands must make sense in two words. A last hint: EXAMine everything.

Even if you have never played an adventure before you should find these two programs enjoyable. Give them a go!

THE ADVENTURE DOUBLE is available only on the New Atari User Issue 70 disk. Disk subscribers will have received their copy with the magazine but the disk can be ordered separately for £2.95 from PAGE 6, P.O. BOX 54, STAFFORD, ST16 1DR. Access or Visa orders can be accepted by telephone on 0785 213928

THE NAU ISSUE DISK OFTEN CONTAINS EXTRA BONUS PROGRAMS NOT LISTED IN THE MAGAZINE

THE CAVES OF CTULHI

Robert de Letter demonstrates with his first ever game that you do not need fancy machine code programming to write a quality game - just imagination and Turbo Basic!

Ever since I bought my first Atari in 1984 I always wanted to write a game. Some utilities I wrote have been published in Page 6 as has a word game (Guess and Count). Some time ago I finally decided to write a platform or 'run and jump' game.

The Caves of Ctulhi is based around a German Public Domain program 'The Dungeons of Xotha'. I always loved that game so I decided to use it as a basis and enhance the original to use some of the excellent features of the Atari. I rewrote the whole character set, added a wizard, some more dungeons, most sound effects, booby traps, magic and an exit to the next cave. After a couple of weeks I decided to re-write the whole program in Turbo Basic to try and speed it up. I now really have seen the speed of that language!

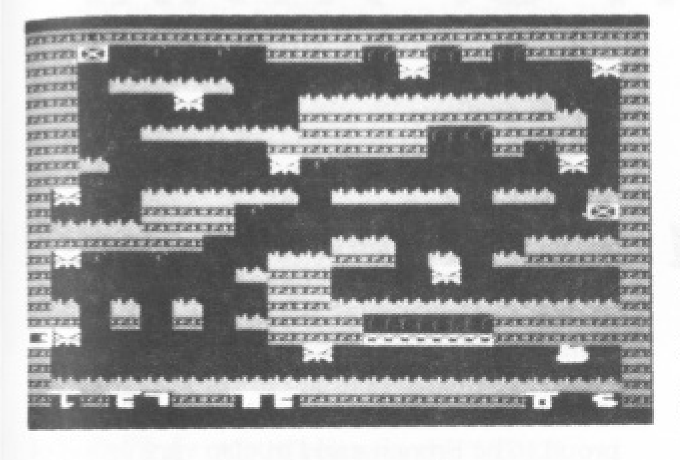
One of the reasons I like this game is that it is written for us older people! No dull chasing monsters and no clock whose only purpose is to reach the zero counter in no time at all. If you think, however, that it is going to be easy, think again. It isn't!

There are no fancy player missile graphics controlled by machine language as all player movement is done by COLOR, PLOT and LOCATE commands. The COLOR command accepts both Atasci and Internal codes, so several colours can be plotted in a Graphics 1 screen. Turbo Basic allows plenty of speed using just Basic commands, in fact in some sections I have had to slow the program down.

THE STORY SO FAR ...

In the Hyborean age, Cohnan was sent out by his King to find the 'Necronamicon', the fabled book of death, a book that gives you unlimited power. Cohnan has journeyed far to recover the book which was last located in the Cthonka hills, but one of the Guardians of the book, the beautiful witch Winonkha, has misled Cohnan and he is stranded in 'The Caves of Ctulhi'. He must go through 10 caves before he can enter the Dragon Room where he believes the book may lie.

The doors of each cave are guarded and can only be opened by bribery. Cohnan (you) must collect 10 gold pieces in every cave before you can open the door to the next dungeon. In each level you also have to meet the invisible Wizard who will give you an amulet. You can open the door without amulet, but don't forget it, there is no way back! When you have reached the final cave you must give CTULHI 10 amulets to become free.



Finding the wizard is not a difficult task, but the wizard is placed randomly in every cave. The sooner you meet him the higher your score is. In the seventh dungeon you have the chance to gain an extra amulet. I will not tell you how, although it's very easy you will probably never find it!.

Once an amulet is yours it is placed at the top of the screen. In the third and ninth caves you gain a life. I realise, professional players do not need an extra life but other players may soon lose interest if they die time and time again.

You can only move left and right but you can jump by pressing the trigger and moving the joystick in the desired direction. Most caves need a certain strategy in order to collect all the gold pieces. You will find teleporters, disappearing bridges and some nasty things. That's really all I have to tell you about the caves.

KEEPING SCORE

At the top of the screen you will see (from left to right): your score, the amulet symbol, Turbo Basic's internal clock (TIME$) ... just to see how long it takes to find the wizard, your lives and the number of the cave.

The less time it takes to open the door the higher your bonus points are. If you quit the game and decide to play again press RESET before running the program again.

As I said earlier I have had to slow the game down but if you want to see Turbo Basic in all its glory leave out some of the PAUSE commands, especially PAUSE %2 in line 200.

I had originally planned to have a good fight against the dragon in the final cave but I ran into a memory conflict. If somebody has a solution, please let me know.

The game starts with a smashing 'Curtain Raiser' written by Daniel Lea and published earlier in New Atari User. If you are still an avid user of our wonderful 8-bit computer, Daniel, I wonder if you have more of these magnificent little gems?

So, that's all. Enjoy the caves and Good Luck.

THE LISTING

The Caves of Ctulhi is included on this issue's disk ready to run. If you would like to type in the listing (remember it is written in Turbo Basic) a printed copy with full TYPO 3 codes can be obtained free of charge from New Atari User. Check the inside back cover for details of how to obtain a copy.

STILL WAITING FOR GO?

THE HISTORY OF ATARI

Atari have gone from being a small games console manufacturer to being ..... a small games console manufacturer. But something must have happened along the way? Pierre Andre Berthault-Meca investigates and reports

Firstly, before you read this article, I would like to apologise for a phrase in an article I wrote for New Atari User a few issues ago which has been very badly received in France. The line "I hate French people, they only think of themselves" was written when I was very angry at certain French companies not supporting the Atari. Let me ensure French readers that I am very proud to be French and I'm also very proud of my culture, so don't worry French readers I'm not a threat to the nation!

Now the purpose of this article is to take a look how Atari have fared over the years, so let's begin at the very beginning and take a trip through good times and bad to see where we are today.

1944 Nolan Bushnell is born.

1969 Nolan Bushnell studies elec-tricity in his college. During the summer of the same year, he takes a job in charge of an attraction park. He will say later: "I always had a weakness for frivolity. So I told myself that technology could also lead to pleasure ..."

1971 Inspired by the computer work of his colleague at university, Nolan Bushnell creates and manufactures his first video game "COMPUTER SPACE". Too advanced for its own epoch, the game will be a commercial failure.

1972 Not discouraged by this down-turn, Nolan Bushnell founds his own company which he calls ATARI (which in Japanese means checkmate in the GO game) and releases "PONG" on the mar-ket. At this time the market was represented only by the arcade games that you can see in a pub or bistro. PONG was an incredible suc-cess! Legend says that Nolan Bushnell cre-ated ATARI with $250, a bottle of rum and a garage. He will say later: *"Everything is true except the garage, it was the bedroom of my daughter that I transformed into a laboratory."*

1973 The "PONG" game is so suc-cessful that ATARI decides to start developing a "VIDEO COMPUTER SYS-TEM" while continuing to release new games onto the arcade market.

1976 ATARI releases the "VIDEO COMPUTER SYSTEM 2600" or "VCS 2600". This new video game machine is so successful that by 1984 18 million units will have been sold in the world and by 1990, 25 million!

1978 With the sales of the VCS2600 and its controlling position in the arcade market, ATARI has become a $15 million empire. In the same year, Nolan Bush-nell sells ATARI to WARNER COMMUNICA-TIONS. A condition of the sale is that Nolan Bushnell won't form any company able to compete with ATARI within the next 8 years.

1978 1979 WARNER, now owner of ATARI, decides to release the ATARI 400/800 computers but only in the American and Canadian markets. The development of these computers started under Nolan Bushnell's presidency but WARNER BROS. decide to accelerate their final release (simply because APPLE had not yet released the APPLE II and WARNER didn't want to delay their entry into this new market). In a few years time the 400/800 will be sold in Europe.

1979 1980 Even though they are very ex-pensive, the ATARI computers find their public. The fact that they have great graphics (128 colours with the CTIA chip), four sound chan-nels and incredible games (STAR RAIDERS was already there!) makes them much more attractive than the APPLE II (one colour and no sound). At this time, with the 400/800 computers and the VCS2600, ATARI really was the master of the computer games market.

1982 ATARI decides to release a new range of home computers, the XL line. Totally compatible with the 400/800 range, the XL will have a new graphic chip - the GTIA chip - which can give 256 colours at the same time; a revised Oper-ating System and a new design. The first machine to see the light of day should have been the ATARI 1200XL. In parallel with the 1200XL, ATARI released the VIDEO COMPU-TER SYSTEM 5200. Totally compatible with the VCS2600, the 5200 has improved graphics and sound and competes with the CBS COLECOVISION system in the United States.

1983 The ATARI 1200XL has not really been well received by the critics. ATARI therefore decide to speed up the launch of the 600XL, the 800XL, the 1450XL and its disk drive based version, the 1450XLD. The sales didn't take off and to the tell the truth, the real winner in the home computer market this year is the COMMOD-ORE 64. We must even admit that a lot of 400/800 users have gone over to the COM-MODORE camp. Even Sid Meier, the world famous programmer of Microprose, moved to the C64. The ATARI machines were really equal to (and in graphics and sound even

better than) the C64 and the price was the same so why did Atari not succeed? The C64 was, of course, totally new and the ATARI XL machines were called by the critics the "new old range of ATARI computers" but that's not all.

Do you know a chap named Morgan, James Morgan (not Bond, James Bond!)? This man was president of ATARI for one year and a half. When WARNER realised what a disaster the launch of the XL range has been, they decide to engage James Morgan who was, at the time, president of Philip Morris, the cigarette manufacturer. When James Morgan arrived, he made redundancies (under WARNER there were 9500 employees and when Morgan left there were only 5000 left). Unable to reduce the cost of manufacture of the computers, the first decision he took - still very contested today - was to freeze all hardware and software development for three months. This period was really crucial, as all the competitors were launching new improved hardware and ATARI was definitely losing the battle against COMMODORE, as it turned out, forever. Morgan, attempting to stay in the market of the $500 home computer where COMMODORE was predominant, costs ATARI a one year delay in the market. Also, a bad choice of chip manufacturer means that the XL machines are only available for seven months of 1984 and the impossibility of making a profit in 1984 leads WARNER to sell ATARI.

1984 In June, at The Consumer Electronic Show in Chicago, ATARI releases its new VIDEO GAME SYSTEM: THE ATARI 7800. The critics said only one thing "terrifying". The ATARI CLASSIC possibilities in sounds and graphics were really surpassed. The ATARI 7800 will enjoy some success in its own market, before the Sega and Nintendo invasion. Even in 1994, the 7800 is still a good buy, with many incredible and recent games. During July and August, negotiations take place between TRAMIEL TECHNOLOGY, a company created by Jack Tramiel (ex-president of COMMODORE) and WARNER COMMUNICATIONS which has decided to sell ATARI to anyone who can pay for it. (During 1984, WARNER needed a lot of capital to finance a fight against Rupert Murdoch, the press magnate, who wanted to take control of WARNER BROS.).

One month before these negotiations, ATARI announces catastrophic results. In 1983, for each dollar of material sold, ATARI loses 50 cents and its market activity is equal to only half of the activity of 1982. ATARI lost 538.6 million dollars on a turnover of 1.1 billion dollars. In the first four months of 1984, the loss was "only" 35 million dollars. ATARI had drifted a long way from the 323 million dollar profit and 2 billion dollar turnover of 1982.

An agreement was signed with Jack Tramiel for Warner to sell Atari for $240 million but the transaction was very unfavourable for WARNER which was not receiving actual cash, only stocks.

One week only after having bought ATARI, Tramiel made 900 redundancies in the States. There were only 200 people left in the Sunnyvale headquarters (only financial services, development and the directors). The factory in El Paso (Texas) closed and the contract with the firm which was manufacturing the 800XL was broken. The 800XL would, henceforth, be manufactured in Taiwan. Tramiel said "The video games market, as the home computer market, is still full of possibilities, and we had to give ATARI a new mentality for a new departure".

1985 During the Consumer Electronic Show in Las Vegas (only six months after the purchase of ATARI by the Tramiel Family), ATARI was showing six new computers: the ATARI 65XE, XEM, XEP and the ATARI 130XE for the eight bits (Only the 65XE and the 130XE will be released) and the ATARI 520ST and 1040ST for the sixteen bits. This was a real declaration of war against IBM and APPLE - a real sixteen bit at the price of the old ATARI 800! - a fight that ATARI will win in Europe. 1985 represents the last year of disk based software produced by ATARI for the 8-BIT.

1986 The ST is a hot seller in Europe. The 130XE has a discreet career.

1987 At the Consumer Electronic Show in Las Vegas (January), ATARI releases the XE VIDEO GAME SYSTEM which is nothing else than a 65XE with a separate keyboard and a light gun. The XEGS, as we call it, has never been a hot seller. ATARI could have modified the internal hardware to improve the graphics and sounds but they did nothing. The only good news from the launch of the XEGS comes from the fact that a lot of "oldies but goodies" games become available on cartridge. Atari also releases the MEGA ST systems. In Europe, the ST really becomes predominant and the COMMODORE AMIGA is really far behind. In France, many consider the XEGS to be an error, if ATARI really wanted a game system, why not simply improve the ATARI 7800 situation against Sega and Nintendo?

1988 ATARI releases the STACY which is an ST portable. The critics will find it very useful but ATARI instead tries to create another new market in presenting the PORTFOLIO, an IBM compatible portable which is no bigger than a VCR tape! On the 8-BIT scene, ATARI presents the XF551, the now famous double density drive.

1989 The last cartridges are released for the ATARI CLASSIC and the last hardware improvement for the 8-BIT is the XEP80 extension which gives the CLASSIC real 80 column ability. Word processing WYSIWYG (What You See Is What You Get) is no longer science fiction for 8-BIT owners. ATARI also releases the LYNX (developed by EPYX), a portable colour video game system, and improves the ST internal hardware: The ST becomes the STE (4096 colours etc.).

1990 No more development for the ATARI CLASSIC computers.

1994 ATARI will release the ATARI TT, the FALCON and the JAGUAR. ATARI will also make a lot of effort to release great games for the LYNX (which is, as the 7800 was, a success even if the sales stay way behind Sega and Nintendo).

1995 Software for the ST goes the same way as the XL/XE with most companies announcing their last ST title (and many more not even bothering). ATARI concentrate entirely on the Jaguar. Manufacturing is now done by IBM and games are developed by outside companies.

AND THEN? With the exception of the ATARI CLASSIC and the ATARI ST, it seems that, in the more recent years, ATARI has released a lot of machines which haven't been a great success but have found a small public. Can we hope that ATARI will be, as in the past, one of the top video games enterprises with the Jaguar? I would hope so, as the Jaguar has had some incredible reviews in France and in the States. But Atari have only this year to get it right as companies like Sony and Nintendo will launch machines as good as the Jaguar by the end of the year. These companies can afford to spend more on advertising than Atari's entire turnover.

1996 Will ATARI join Commodore (who would have expected them to go into liquidation?) or will they finally turn their success with invention into the long awaited successs in the market place?

I hope you have enjoyed this travel through ATARI history. In my next article I will explain everything about the cartridges released by ATARI for the 8-BIT. A lot of mysteries will be solved. You will know everything (references, revisions, boxes and different packaging, unavailable cartridges etc.). See you then! ●

The CLASSIC PD ZONE

As part of the latest cultural exchange between Earth and Atari8 we have agreed to take part in a musical showcase on the planet Dernou, known throughout the Classic PD Zone as the Planet of Song. Here is the complete showcase from Earth.

SWEET MUSIC

Let's start with music that owes its very being to the Atari computer. ***MUSIC SHOW*** showcases music specifically written for computer games and comprises a collection of 28 music tracks taken from 16 commercial games of the 1980s.

After a very impressive introduction, featuring a colourful kaleidoscope pulsating to the main music from Draconus, you are presented with the first of two menus. At these menus you can play popular tracks by Adam Gilmore, Chris Murray, Rob Hubbard and a host of other Atari 8-bit programmers. The tracks come from games such as Winter Olympiad 88, Draconus, BMX Simulator, Submission, Red Max, Warhawk, etc. Obviously, if you own most of the games then Music Show will not have anything new to offer you. I suppose there is still the advantage of having all the tracks together on one disk.

If you don't own many of these games and you're a fan of computer music then you really should listen to some of the tracks included. There are six excellent tunes from Draconus, two from Milk Race which are not to be missed, and some excellent main themes from Storm, Extirpator and Jet Set Willy.

Music Show is a good disk for showing off your Atari 8-bit's musical capabilities.

CLASSIC PD ZONE RATING : 73%

AND THE BAND PLAYS ON...

If you prefer music that's not written for computer games you can check out a couple of other music disks.

MUSIC PLAYER 1 contains 18 tracks - 9 classical and 9 contemporary. They range from compositions by Bach and Beethoven to modern rock tracks. You simply move the cursor up and down the list of tracks and select one by pressing Return. Once selected, you move onto the main playback screen. Here the track is played both audibly and visually. A large horizontal graphic equalizer pulsates to the track whilst an on-screen keyboard displays the notes being played.

MUSIC PLAYER 2 is exactly the same program, only the tracks are different. This time there are 14 tracks for you to enjoy.

Overall, the Music Player disks are quite enjoyable. The graphic equalizer and on-screen keyboard certainly bring life to the tracks. Nothing new, but a good effort nevertheless.

CLASSIC PD ZONE RATING:
MUSIC PLAYER 1: 70%
MUSIC PLAYER 2: 69%

AND ON...

Kemal Ezcan of KE-Soft is known to enjoy composing music on his Atari 8-bit. If you own any of his PD or commercial programs you will no doubt have heard his work.

SUPER SOUND contains the Supersynthesizer file player by Kemal Ezcan and a collection of 26 musical tracks. Some of the tracks are good, some are average and some, unfortunately, are awful. Just listen to the terrible versions of the Dallas theme and Axel F. - you'll soon be reaching for the power switch at the back of your computer (after you've had a good laugh).

Thankfully, most of the tracks are either good or average. All of them are written in BASIC so could easily be used in your own programs. They range from original compositions to cover versions of popular songs (Oxygene Part 2, Telstar, Spanish Eyes, Popcorn, etc.). A good example of a musical showcase programmed in BASIC.

CLASSIC PD ZONE RATING: 67%

...AND ON!

For many, the name Gary Gilbertson conjures up images of wonderfully original compositions. If you have experienced the songs during the opening sequences of Datasoft's Alternate Reality series then you'll know what to expect from the next disk.

A.M.P. MUSIC is a demo disk of eight songs, all written by Gary Gilbertson. Playback is via Philip Price's Advanced Music Processor (A.M.P.). Back in 1982, Price and Gilbertson authored the now classic shoot-em-up Tail of the Beta Lyrae (released by Datamost in 1983). A.M.P. V3.0 came out soon after. Next came many more versions of A.M.P. and a host of new songs throughout 1982 and 1983. Their greatest work was still to come. Alternate Reality: The City was released by Datasoft in 1985. Gary Gilbertson went on to write the music for Alternate Reality: The Dungeon (1986). Philip Price produced many different versions of A.M.P. (I believe V11.4 was his final version).

Gary Gilbertson's work is impressive no matter which version of A.M.P. is utilized for playback. The mix of programming and musical talent is there for all to see on A.M.P. Music.

In action A.M.P. is a joy to watch as well as listen to. It centres around a black screen and four thin bars. These are coloured blue, purple, red and green. Each represents a channel of sound during playback. They move left and right across the screen as the notes change, and increase and decrease in height dependent on the level of volume.

The early versions of A.M.P. look basic. The bars are too thin and look like cocktail sticks. They flash quickly and are hard to follow at times. The mid-late versions of A.M.P. are much more impressive and very similar in presentation. They begin with a title screen displaying the version number and song title. The playback screen is more polished. The bars are thicker (they look like coloured pencils) and their movement is smoother. There is also the advantage of timed lyrics which are displayed at the centre of the screen line by line superimposed over the bars. It all works very well!

The eight songs on the disk are split into two groups: Four from 1982 (with playback on early versions of A.M.P.) and four from 1983 (played on the more familiar version). All eight songs on the disk are excellent. The four from 1983 are quite simply superb! Here are some

with Stuart Murray as your Tour Guide

brief descriptions beginning with those from 1983:

Face is a long collection of different pieces. It sounds very much like a Star Trek movie soundtrack. *Passionately* and *All Were I* are wonderfully bouncy tunes with sing-a-long lyrics. You can't help but join in! The final track from 1983 is *Say the Things*. It is a love song with humorous lyrics, e.g.

> *"Can this really be,*
> *You're eighteen*
> *I'm ninety-three,*
> *It must be love"*

The lyrics for *Passionately, All Were I* and *Say the Things* have the advantage of highlighted syllables whilst each line is displayed. This allows you to sing-a-long with ease.

The four 1983 tracks alone make the disk excellent value for money, however there is more A.M.P. magic to enjoy with the songs from 1982 included as a bonus. *Alien* is a spooky, unpredictable instrumental track with great atmosphere. *Arab Navy* and *Post Navy* are again instrumental tracks. They are both very fast and sound like part of a laser lightshow. *Post Navy* is longer and has more going on. It even slows down in the middle and transforms into a love song.

Frog sounds like a song from a stage musical. It has some lyrics which scroll slowly across the top of the screen (unfortunately not in tempo with the music). You could see Philip Price was moving towards his more familiar version of A.M.P. at the time.

With eight excellent songs together on one disk, A.M.P. Music is outstanding both in quality and value for money. If you enjoy computer music you really should get this disk. Gary Gilbertson is a master at work!

CLASSIC PD ZONE RATING: 88%

MORE A.M.P. MAGIC

If you would like to hear more A.M.P. tracks by Gary Gilbertson then check out ***MORE PASSIONATE MUSIC.*** It contains the four songs he wrote for Datamost ('Robotman', 'Airstrike' 'Cosmic Tunnels' and 'Monster Smash') as well as a first cut of 'Alternate Reality' which sounds nothing like the final version. Also on the disk is a very interesting text file containing a brief history of A.M.P.

CLASSIC PD ZONE RATING: 84%

I hope our friends from Atari8 enjoy Earth's musical showcase. Let's just hope that when we attend the Pudosian showcase there is no need to use our special-edition Air Atari8 sound deflectors. The last time these were made standard issue was during a mission back on Earth many, many years ago. The mission was to Stafford, UK, where three Air Atari8 representatives had to negotiate with Page 6 Publishing. The editor was playing his CD's when they arrived! Only one representative returned to headquarters, and he was on the edge of insanity grasping his ears and pleading for silence. [Must have been one of those Scottish bands like Runrig! Ed.]

Say it loud, "8-bit and proud!"

The disks reviewed have been:

DISK 69 - MORE PASSIONATE MUSIC
DISK 131 - A.M.P. MUSIC
DISK 172 - MUSIC SHOW
DISK 206 - MUSIC PLAYER 1
DISK 213 - MUSIC PLAYER 2
DISK DS61 - SUPER SOUND

TURBO TYPE-INS

MINI TURBOS 2

Quite a few issues ago we re-introduced the idea of 'five-liners' or mini programs in the hope that it would encourage you to submit your own collection of of 'mini' programs. Only a few of you did but Andy Guillaume gives it a second go with this new collection for you to enjoy. Don't expect miracles in a few lines but do expect a bit of fun for just a few minutes typing.

```
XD 1 REM  TURBO MINI 1 - INTEREFERENCE
QQ 2 REM         by Andy Guillaume
MI 3 REM
DF 20 FOR N=1536 TO 1791:POKE N,RAND(8)*%
   2:NEXT N
WK 30 GRAPHICS 10:MOVE 1536,705,8
QA 40 FOR X=%0 TO 79:FOR Y=%0 TO 191
AZ 50 COLOR RAND(8)+%1:PLOT X,Y
DI 60 NEXT Y:NEXT X
KW 70 MOVE 1536+RAND(244),705,8:GOTO 70
```

MINI 1

The first mini, which I have called **INTERFERENCE**, is just another small GR.10 effect that produces a sort of interference pattern.

LINE COMMENT/USAGE

LINE	COMMENT/USAGE
20	Setup Colour sets
30-60	Draw screen (Random Dots)
70	Move random colour set into palette and loop

```
OV 1 REM  TURBO MINI 2 - QUICK PMG'S
QQ 2 REM         by Andy Guillaume
BQ 20 GRAPHICS %0:FOR N=1536 TO 1545:READ
    B:POKE N,B:NEXT N:DATA 28,8,8,65,127,
   127,65,8,8,28
NC 30 PMG=40960:SCN=DPEEK(88):X=100:Y=100
NS 40 FOR N=%0 TO 3:POKE 53248+N,X+(N*10)
   :POKE 53256+N,%0:POKE 704+N,((N+%1)*%2
   )
GM 50 MOVE SCN,PMG+1024+(256*N),256:MOVE
   1536,PMG+1024+(256*N)+Y,10
XG 60 NEXT N:POKE 54279,PMG/256:POKE 5327
   7,%3:POKE 559,58:POKE 623,%1
```

LINE COMMENT/USAGE

LINE	COMMENT/USAGE
20	Pokes Graphics data into 1536 onwards
30	Setup variables
40-50	Set X-position, Width, Colour
....50	Erase then Plot Player
60	Set PMBASE, GRACTL, SDMCTL, GPRIOR

MINI 2

The next mini, **MINI PMG**, shows a quick method of setting up Player Missile Graphics. It uses the MOVE command to clear the PMG DMA area by moving blank screen data there. The loop serves to setup each of the 4 Players' Parameters and again uses MOVE to define them.

MINI 3

Do you fancy a neat little demo effect in your programs? Well the next program, WAVE, shows a wave effect on a line of text. This is accomplished by a brute force method and again uses MOVE to copy the appropriate GR.8 line to the relevant position. The positions are calculated first and stored in arrays of Frame number and X-position of each angle for extra speed. Then eight lines of the message are drawn using the TEXT command and stored using MOVE, each line being shifted one pixel right to give a smooth effect. The program then loops for each line of the GR.8 data increasing the angle accordingly and loops around again to continue the effect.

Try changing the Angle Step, AS at line 60 for smoother or steeper angles.

```
MY 1 REM  TURBO MINI 3 - WAVE DEMO
QQ 2 REM         by Andy Guillaume
NI 3 REM
RO 20 DEG :GRAPHICS %0:DIM FTAB(359),XTAB
   (359):POKE 752,%1
BM 30 FOR AN=%0 TO 359:POSITION %0,%0:? 3
   60-AN;" "
UQ 40 X1=INT((SIN(AN)*30)):FR=X1 MOD 8:X2
   =X1 DIV 8:IF FR<%0 THEN FR=FR+8:X2=X2-
   %1
YR 50 FTAB(AN)=FR*320:XTAB(AN)=X2:NEXT AN
ZI 60 GRAPHICS 24:POKE 709,%0:POKE 710,%0
   :AN=%0:SCN=DPEEK(88):DES=SCN+(91*40):D
   AT=35000:AS=6:COLOR %1
NB 70 FOR N=%0 TO 7:TEXT 80+N,N*8," WAVE 
   DEMO By A.D.G ":NEXT N
PS 80 MOVE SCN,DAT,2560:CLS #6:POKE 709,1
   0
IJ 90 FOR N=%0 TO 7
UB 100 FR=FTAB(AN):X2=XTAB(AN):FROM=DAT+(
   N*40)+FR:DEST=DES+(N*40)+X2:MOVE FROM,
   DEST,40:AN=AN+AS
SZ 110 IF AN>359 THEN AN=AN-360
IY 120 NEXT N:AN=AN-(AS*7):IF AN<%0 THEN
   AN=AN+360
SK 130 GOTO 90
```

LINE COMMENT/USAGE

LINE	COMMENT/USAGE
30-50	Setup Array tables
60-80	Setup GR.mode and "TEXT" data
90-120	Loop for each line to display
..100	Get frame, position per angle
..120	End loop. Reduce angle for next display frame
130	Loop back to restart sequence

by Andy Guillaume

MINI 4

To end off with, how about a crazy effect that's of no use except to scare your friends into thinking that their Atari has gone to pieces! The last mini turns your editing screen upside-down, so you have to look at the picture upside-down in a mirror for normal viewing!

A hardware 'feature' at CHACT (755) turns the characters upside-down, but I've never thought of a use for it before. Change the 6 in line 80 to 2 to slip into a different parallel universe!

```
JC 1 REM           TURBO MINI 4
MB 2 REM        Parallel Universe
DD 3 REM         by Andy Guillaume
NJ 4 REM
IU 20 GRAPHICS %0:SCN=DPEEK(88):DL=1536:D
   LP=DL+%3
ZC 30 POKE DL,112:POKE DL+%1,112:POKE DL+
   %2,112
SA 40 FOR N=23 TO %0 STEP -%1
AE 50 POKE DLP,66:DPOKE DLP+%1,SCN+(N*40)
   :DLP=DLP+%3
KN 60 NEXT N
IA 70 POKE DLP,65:DPOKE DLP+%1,DL
XF 80 POKE 755,6:DPOKE 560,DL
```

THE HIGHEST LEVEL

This issue brings to you a review of two gems for the trusty 8-bit. To be more accurate, this month's Software Classics column is a review of six games, but in two boxes, each offering outstanding value for money.

Many of you will be aware that my real interest is adventures, but in order to keep this column well balanced I have not reviewed any adventures, until now. The two sets of adventures I have chosen to review this issue are Lancelot and Silicon Dreams. Before writing the reviews I checked some old issues of Page 6 in order to price the games and this is what I turned up - Lancelot was released in 1988 and cost £15. Silicon Dreams was originally sold as three separate adventures: Snowball, Return to Eden and The Worm in Paradise at £12 each. So, the total cost of buying these adventures was £51! You can now buy the whole lot from New Atari User for a tenner. That has to be the best sale of this New Year.

I bought these adventures more or less as they were released, however Silicon Dreams was subsequently substantially improved with a more advanced parser, so I bought them again, and it was well worth it. Both sets of adventures were written by Level 9, who were one of the world's best adventure writers. They were even put on a par with Infocom, in some American magazines.

SILICON DREAMS

Silicon Dreams is a trilogy of three entirely separate adventures set in the twenty third and twenty fourth centuries. Part one takes place on board the colonisation ship Snowball. The vast amount of space to be crossed by the ship necessitates travel in hibernation. However, you are woken prematurely and realise that something must be wrong, disastrously wrong.

Snowball is a huge game, and I do mean huge. The original version boasted some 7000 separate rooms. At the time, playing Snowball on a 64k XE, I didn't believe that the adverts could be accurate. I don't think the editor believed this either, as he raised the point with the Austin brothers at Level 9 in an interview back in issue 34. Their reply was 'they are all rooms in which you can leave objects' - not that you would want to of course! The updated versions of the three games, including Snowball, boasts over 13 million rooms. Heaven help you if you get lost!

Second in the trilogy is **Return to Eden**. This is one of my personal favourites, with some really excellent puzzles to solve. Having just saved the Snowball, you are found guilty, unjustly, of trying to sabotage the ship. Your only option is to escape to the planet Eden, and evade the anger of your your shipmates. Once you have escaped to the planet, your adventure really begins. Eden is home to a plethora of strange flora and fauna that pose great difficulties to your very survival. Indeed, your only chance is to find your way to the city of Enoch. Be prepared for the adventure of a lifetime.

The concluding part of Silicon Dreams is **The Worm in Paradise**. The adventure takes place some 100 years after the previous two adventures. You are a citizen of the Enoch megapolis of Eden, a place that is almost perfect, but not quite. No one in their right mind would want to challenge the system. Would you? Again, this is a fantastic science fiction world created by the Austin brothers at Level 9.

The Silicon Dreams trilogy are standard text adventures, but with graphics; there are some six hundred illustrations covering the three games. My only criticism of the set is the inclusion of graphics, which I feel add little to the atmosphere. The analogy I draw is that a great novel would not benefit from pictures. However, this criticism is a little unfair as the graphics can be switched off if, like me, you prefer pictures generated in your own mind, prompted by rich prose.

LANCELOT

The second game reviewed this issue is Lancelot, again by Level 9. Lancelot can only be described as a masterpiece, and a tribute to the detailed work of the Austin brothers.

As you will have guessed, Lancelot is the story of King Arthur and the Knights of the Round Table. It is refreshing to see the story from a different perspective, i.e. that of Sir Lancelot, as Arthurian tales usually centre around King Arthur. Your five pounds buys you three adventures that will last a long time unless you are a true expert.

It will be immediately obvious to anyone who is familiar with the Grail romances that an awful lot of research has gone in to this game. You will find that the entire plot, people, places and events follow the romances closely, particularly Le Morte D'Arthur. The real magic in this game is the way that the puzzles and problems set in the adventure slot in with the story so seamlessly. When you play the game you actually feel embroiled in the plot, and the 14th Century story, told through generations, comes alive.

The setting for the first part of Lancelot is in and around Camelot, where it is your aim to become knighted and rise to the position of best knight through valorous deeds in Logris. The game kicks off with trying to reach Camelot, but to do so you must first pass the Black Knight... The second part of the adventure takes place in Logris where your task is to free all the captive knights, and enable Galahad to return to Camelot. So, with all the leg work done, you finally move on to the concluding part of the adventure - the quest for the Holy Grail - the goal that many have dreamed of.

Lancelot is truly captivating, and will keep you amused for months. The game is Level 9 at its best and is not surpassed by any adventure in my opinion. One of this game's strengths, as with Silicon Dreams, is the user interface. Some of the useful features incorporated include an UNDO feature, RAM saves, GO TO and RUN TO options which make the game that much friendlier to operate. The XL/XE version is text only.

I can only say that you really should try these classic adventure games, even (especially) if you have never tried an adventure before. At under £1.70 per adventure you get a real some real classics on disk, with excellent instructions and a novella in each box. Try it, give your brain some exercise, and be hooked!

Usually games such as these are only available on disk but unusually both Lancelot and Silicon Dreams are still available on both disk and cassette, so that every Atari owner can enjoy them. No excuses!

reviewed by Mark Stinson

AUTO FUNCTION KEYS

Boot up Benjamin Arnold's program when you start a programming session and you will have many DOS and other functions available at the press of a key

Auto Function Keys is a machine code program which sits inside your computer from startup and provides many facilities to go with normal BASIC. The main part of the code is over 2 KBytes long, yet due to advanced programming techniques only page 6 of available RAM is actually taken up by the program. However, once the routine is running under no circumstances must you use any program which uses the shadow RAM under BASIC. This includes programs such as RDBASIC in SpartaDOS or the Atari User Toolkit.

THE FUNCTION KEYS

The program gives you the following options

CTRL+4	Keyboard Click on/off
CTRL+5	Cursor on/off
CTRL+6	Left margin 0/2
CTRL+7	Catalogue drive 1
CTRL+8	Binary load
CTRL+9	Help
CTRL+0	Go to DOS
SHFT+CTRL+4	Control Panel
SHFT+CTRL+5	Rename file
SHFT+CTRL+6	Erase file(s)
SHFT+CTRL+7	Protect file(s)
SHFT+CTRL+8	Unprotect file(s)

COMPATIBILITY

I have tested the program on SpartaDOS 3.2 and Atari DOS 2.5, but it should work with all versions of SpartaDOS and Atari DOS. It may also work with others such as MYDOS. It will work on the Atari 800XL, 65XE (both versions) and 130XE. It should also work on an expanded 600XL. However, it will not work on the old 400/800 due to the different memory map.

SETTING UP

Everything you need is contained in the program **SETUP.BAS** which is on this Issues's disk or available from New Atari User as a type-in listing. Either run the program from the Issue disk or type it in and save it to a separate disk. Following this, format a fresh disk and write DOS to it. Then, load SETUP-.BAS, insert the new disk and type RUN. Three files will be written to the disk - SHADOW.OBJ, FKEYS.COM and INIT.OBJ. Next, you must do different things depending on the DOS you are using.

For Atari DOS, rename the file INIT.OBJ to AUTORUN.SYS, reboot and then you are done.

For SpartaDOS, the procedure is different. If you are using SpartaDOS 3 then you must create a STARTUP.BAT batch file containing the commands KEY OFF followed by INIT.OBJ. After this, the program is ready for use. If not using SpartaDOS 3 you must rename INIT.OBJ to INIT.COM and create a STARTUP.BAT file which simple does INIT.

During loading the screen turns black, but once loaded, the program performs almost identically with either DOS. The only major difference is that when returning from DOS, in DOS 2.5 you must press reset to clear the system and to re-run Function Keys. In SpartaDOS this isn't necessary.

A WARNING

Before I come on to describe each function, it is important to say that if you are going to use page 6 for another program, please type POKE 9,1 and press Reset before commencing. If at any other time the system crashes, you may be able to restore it safely by holding down Option as you press Reset, typing POKE 9,1 and re-running Function Keys.

EXPLAINING THE KEYS

The first two keys (**CTRL+4** and **CTRL+5**) are self explanatory. They work as soon as you press the key, and are toggles. The only quirk on **CTRL+6** (Left margin) is that once the left margin has been moved, it may move in either direction. Catalogue (**CTRL+7**) is easy - it simply does a full catalogue of the disk in drive 1. It will also give an expanded catalogue if SpartaDOS is being used.

CTRL+8 (Binary load) is very useful, as it fills a function which is missed out of BASIC - the facility to load machine code. After pressing this, you are prompted for a filename e.g. D1:TEST.OBJ. The routine will find out the load address, but will not load if it is not a binary file. Once it is loaded, you can run it with USR.

Help (**CTRL+9**) is simple - it gives a complete list of all the functions, and DOS (**CTRL+0**) is just as easy. However, be careful as in DOS 2.5 you could accidentally press this and lose your program.

Leaving Control Panel aside for the time being, the remaining functions are easy. From **SHFT+CTRL+5** to **SHFT+CTRL+8**, they are rename, delete, protect and unprotect disk

files. They can all use wildcards except rename. They all ask for a filename, and then do the job. Currently, SHFT+CTRL+9 and 0 are undefined i.e. they do nothing.

with a built-in Control Panel

A CONTROL PANEL

Control Panel (**SHFT+CTRL+4**) is very useful. For example, some people don't like the normal colours of the Atari screen and Control Panel will give you the chance to change them for good. You are presented with a menu, and must type in the number of your choice. Each one is presented with the current value in HEX. You type in the identifier (down the left hand side of the screen) or 0 to exit. However, to bring about the changes you must press Reset. To type in the new value, always type in two HEX digits.

The two margin selectors only take effect in graphics 0 and therefore, neither can be larger than $27 (39). Also, be sure that the left margin is less than the right margin!

The three colour options are self explanatory, and can be anything from $00 to $FF (0-255).

The last two are different. IO sound can only be 0 or 3 (type 00 or 03) and makes no difference in SpartaDOS 1 or 2. If it is 3, you can hear disk, printer, cassette etc. sounds. If it is 0, these are barely audible. Cursor status is also useful. The usual values are as follows:-

00 : No cursor, inverse goes to normal
01 : No cursor, inverse vanishes
02 : Normal setting
03 : Cursor on but inverse goes to blocks
04 : No cursor, inverse goes to normal and text upside down
06 : Cursor on, inverse usual and text upside down.

If you do anything silly, you can always press option whilst holding Reset and re-load.

PERMANENT CHANGES

The disadvantage with the above system is that you must reset the values each time you switch on, but there is a way around this as well. Permamnent changes can be achieved by altering the SETUP.BAS program.

On line 2070, there are 6 values - 35, 2, 39, 202, 148, 0. Ignoring the first, they are Left margin, Right margin, Pen colour, Paper colour, Boarder colour. Just alter these to the values your require.

The first number is special, and must be dealt with in binary. In binary 35 = 0010 0011. The first four bits are the cursor status (0010=2) and the second four bits are the IO sound (0011=3) these can also be changed and the number re-calculated.

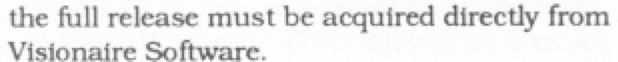
Once you have made changes to the SETUP-.BAS program, resave it and run it again to make the changes permanent. ●

THE LISTING

AUTO FUNCTION KEYS is available ready to run on the Issue 70 disk and also as a TYPO coded type-in listing which can be obtained by subscribers free of charge. Check out the inside back cover for details.

ARENA

Here's a relatively new game from Andy Guillaume, whose good work has previously featured on Page 6 issue disks and in the PD library. A demo version of ARENA was included as a disk bonus with issue 66 of NAU, but the full release must be acquired directly from Visionaire Software.



You are employed as the Supervisor of a futuristic power plant. Unfortunately, due to the activities of certain rebellious forces, several volatile power pods have escaped from the main reactor housing. They are floating through the hazardous rooms of the plant and you have responsibility for guiding them back to the main reactor. The pods move in a predictable, but not particularly helpful, pattern - they keep travelling in a straight line, and turn left if there's something in the way. You can't control their movement directly but, using a joystick, you can build and destroy walls in the open space to influence the subsequent course of events. It's important you don't allow pods to collide with 'matter converters' since these tend to vaporise everything on contact.

Graphics are functional rather than spectacular. The lower screen portion is occupied by a status panel informing you of the ever decreasing bonus score entitlement (once it hits zero you've lost a life), the number of pods requiring capture and the number that are currently 'in' or 'out' of the destination reactor. Above this panel you'll observe the walls, rooms and other scenery representing the power plant - this area scrolls vertically to reveal over two screens worth of playfield for each level. An orange outline cursor identifies the position where walls may be constructed or removed. Bonus tokens scattered through the levels can earn you extra points, time and lives. You initially have three lives but to avoid the frustration of inevitable mishaps, a password system is invoked after every tenth level. A high score table is maintained on disk.

Although at first Arena appears to be fast-paced, it's really more of a logical puzzle. It's wise to carefully consider each layout before you commence the process of building walls and manoeuvring pods. With fifty screens to master, this is a game that should keep you occupied for hours.

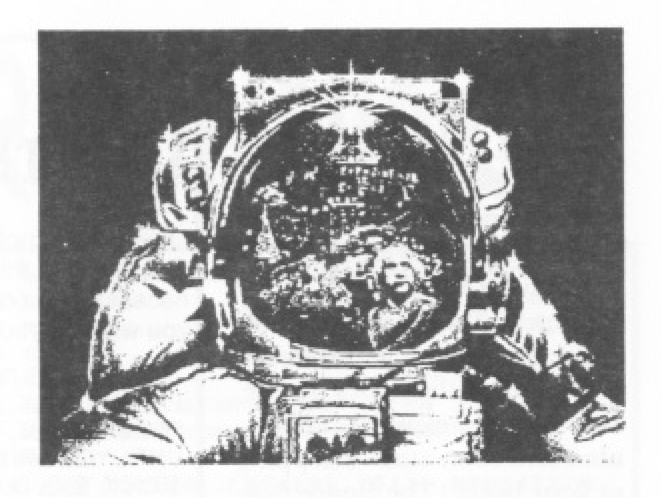
- ● *Title:* ***ARENA***
- ○ *Publisher:* ***Visionaire Software***
- ○ *Format:* ***Disk***
- ○ *Price:* ***£5.00***

Arena may be obtained from Visionaire Software. Write to Andy Guillaume, 30A High Street, Alcester, Warwickshire, B49 5AB to order or check the price.

reviewed by Paul Rixon

STATIONFALL

Another Infocom Classic



Anyone who knows me, or who may have read any of my articles and reviews will have undoubtedly guessed my bias towards adventure and particularly my preference of the Infocom range.

I make no apologies for my leaning towards Infocom which, sadly, no longer produce adventures for the Classic. If you are even remotely interested in adventure and have never tried an Infocom then you must buy one now, while there are still some available. I have stocked up on all those available from the various suppliers, and still have 12 to play. Why not contact Derek Fern of Micro Discount, or Page 6 and try one out? If you can obtain an Infocom you would be hard pressed to find a better adventure than Stationfall which is quite simply brilliant.

Stationfall is the sequel to the hugely successful Planetfall (although you need not have played this to play Stationfall).

Along with the disk you will find the now famed selection of goodies contained in each Infocom. There is the ever helpful official technical manual, which is a must for all players, especially the beginner. Along with this there is a supply of forms which will be needed during the game, a full set of station blueprints, and a badge sporting the caption 'boldly going where angels fear to tread'. With badge sewn firmly on to your tunic, and administrative forms in hand, you commence your adventure ......

reviewed by Mark Stinson

BOLDLY GOING

Once you have the disk booted up you find yourself on the SPS Duffy, a huge Federation Starship among whose crew you are but a lieutenant 1st Class (which is a step up from your rank as Ensign 7th Class in Planetfall).

Reading through your paper work you find a robot authorisation form, spaceship activation form, and an assignment completion form. You will see that this latter form is an instruction to fly to Space Station Gamma Delta Gamma 777-G 59/59 to collect '24 pallets of request for stellar patrol issue regulation black form binders request form forms' - thrilling stuff. If only life were that simple.

Before you depart on your mission you must visit the robot pool to appoint a companion on your mission. There are three robots to choose from, but however hard you try you always end up with the co-star on this epic mission, Floyd. Floyd is a boisterous little robot who was also your companion in Planetfall. He really is the central attraction in Stationfall, and hours of fun are to be had watching his comic behaviour. He is playful, moody, and at times unreliable on your mission, which makes him all the more 'human'.

THE DEPARTURE

The reunion over, you are now ready to commence your mission to the space station and to get there safely you must fly a spaceship presently docked on the east side of the SPS Duffy. The truck is mostly automated so that you need not worry about elementary spaceship physics. You will, however, be required to enter the time code on the truck's keyboard. If you make an error here you will certainly regret it! I remember the reverse thrusters bursting into life after a short trip and the truck coming to a halt in empty space. You have no fuel, and your only relief is by way of an emergency beacon, operated by pressing the appropriate button. Having pressed this button I listened, with a cold shudder, to a recorded voice as it tried to calm me: 'there is nothing to worry about, nothing can go wrong <skip> go wrong <skip> .....'.

However, if you are successful in programming the spaceship accurately, you will shortly be greeted with the incredible sight of a huge Space Station looming up before you. You can see that attached to this miracle of technology is a seedy looking space village which has grown in an uncontrolled manner over the years (obviously no Town Planners in this neck of the woods!).

Before long the ship glides gracefully into a docking bay. Having collected your belongings, such as food and forms, you are ready to begin the quest. You leave the ship with Floyd in tow, and enter the Space Station.

THE SPACE STATION

The Space Station is pretty big, so there's plenty to explore. One of the first things that strikes you as you roam the place is the distinct lack of human activity. This is particularly strange when you study the blueprints and find that the ship's complement is usually 43, comprising 36 crew, 6 officers and a Station Commander.

The station is split into three main areas; the Central Command Module, which is on 9 levels; a Scientific Sub Module; and also the village. At various locations in the station you will find bits and pieces to aid you on your quest. For example, film spools are dotted about and these can be very useful sources of information when read on the machine in the library. The Commander's log also makes interesting listening, and gives you a further indication that something must be awry.

It appears from a recent entry that the crew were tracking an alien ship as it approached the Space Station. The ship, it transpires, was brought into one of the docking bays for examination. The remains of a long dead alien lifeform, and a curious pyramid were found aboard the ship. Extensive biological/scientific investigations ensued (as a second priority to the main raison d'etre of the Station -

printing!).

Since the arrival of this ship and its strange cargo all of the electronic devices on board have been acting strangely. This is particularly concerning when you consider that all of the doors on the ship are electronically operated and soon start 'snapping at your heels'. The Space Station is also maintained by welder robots who constantly check the integrity of the hull. When they start to mistake you for a hole in need of repair don't hang about! Later, even Floyd seems to change.

You will very quickly realise that your original mission is no longer of primary importance, and that you have to now find the cause of these strange happenings. Should you fail, then life as we know it may never be the same again.

IN SUMMARY

Stationfall is an excellent adventure which will keep you on your toes, and which poses some real good problems to solve. Having said that, it is not so hard as to cause undue difficulty to the average adventurer.

Stationfall is no longer easy to find but if you can locate a copy then I would strongly suggest you buy it immediately. ●

STATIONFALL THE FULL SOLUTION

If you have not yet played Stationfall, then I would recommend that you skip this section as it will reveal all of the actions necessary to complete the game. If, however, you are stuck then you will find your answer(s) here.

E, N, INSERT ROBOT FORM IN SLOT, TYPE 3, S, E, OPEN HATCH, ENTER TRUCK, TAKE KIT, CLOSE HATCH, SIT, INSERT ACTIVATION FORM IN SLOT, TIME, ENTER CODE FROM SHEETS SUPPLIED, WAIT UNTIL YOU ARRIVE AT THE STATION, STAND, OPEN HATCH, LEAVE TRUCK, E, D, D, OPEN CAN, GET FORM, NW, GET DRILL, SE, U, U, U, U, NW, OPEN PRESSER, PLACE CRUMPLED FORM IN PRESSER, CLOSE PRESSER, START PRESSER, STOP PRESSER, OPEN PRESSER, GET FORM, E, D, D, SE, SE, E, OPEN KIT, OPEN BOTTLE, EAT SOUP, LOOK UNDER BED, GET STAMP, STAMP VILLAGE FORM, DROP STAMP, W, NW, S, INSERT VILLAGE FORM IN SLOT, S, S, NE, NE, SE, INSERT ID IN MACHINE, START MACHINE, TYPE 7, STOP MACHINE, GET CARD, (NEVER CARRY THE ID WHILE WEARING OR CARRYING THE BOOTS - THE MAGNETIC FIELD WILL RUIN IT), NW, SW, SW, N, N, NW, D, SE, INSERT ID CARD IN READER, N, GET GUN, S, W, U, SE, S, W, WAIT UNTIL FLOYD ARRIVES, FLOYD GET MEDIUM BIT, GET MEDIUM BIT, E, N, E, S, E, DRILL SAFE, REMOVE SMALL BIT, DROP SMALL BIT, INSERT MEDIUM BIT, DRILL SAFE, DROP DRILL, W, NW, S, S, S, NE, NE, NW, EXAMINE CEILING, OPEN PANEL, GET STICK, SE, DOWN, SW, S, SHOOT BOX, GET COIN, N, SW, GET CAN, NE, NW, N, N, N, SE, E, GET IN BED, WAIT, GET OFF BED, GET GUN, CAN, KIT, STICK, W, NW, S, S, S, SE, SE, NW, NE, U, N, E, BREAK MIRROR, GET FOIL, W, S, NW, OPEN CAGE, NE, SPRAY CAN, W, SPRAY CAN, W, SPRAY CAN, W, NW, NE, INSERT COIN IN MACHINE, TYPE 6, PLACE STICK OVER HOLE, GET TIMER, SW, SE, SPRAY CAN, NW, SPRAY CAN, SW, SPRAY CAN, U, SPRAY CAN, U, SPRAY CAN, SW, OPEN PULPIT, PRESS SWITCH, SPRAY CAN, HOLD LEASH, OPEN STAR, GET DIODE, D, DROP CAN, E, U, S, GET DETONATOR, OPEN IT, REMOVE BLACKENED DIODE, EAT GRAY GOO, DROP BLACKENED DIODE, NW, D, WAIT, WAIT, WAIT, FLOYD HELP ME (AFTER BEING SHOT), GET ALL, E, E, E, GET LAMP, W, S, SE, E, SPIN WHEEL, U, OPEN LOCKER, GET SUIT, WEAR IT, D, W, W SE, D, GET BOOTS, WEAR BOOTS, W, NE, OPEN INNER, ENTER INNER, CLOSE INNER, OPEN OUTER, TURN ON LIGHT, OUT, READ LABEL, PLACE CYLINDER IN BOTTLE, CLOSE BOTTLE, CLOSE KIT, IN, TURN OFF LAMP, CLOSE OUTER, REMOVE SUIT AND BOOTS, DROP THEM, OPEN INNER, IN, U, N, N, W, W, W, NW, SW, GET ALL, SE, SE, E, ATTACH TIMER TO DETONATOR, DROP THEM, OPEN KIT, OPEN BOTTLE, GET CYLINDER, ATTACH IT TO DETONATOR, PLACE CYLINDER IN HOLE, LOOK, SET TIMER TO 25, W, WAIT, E, GET KEY, W, NW, NE, NW, N, N, N, U, (LIGHTS GO OUT), TURN ON LAP, GET BOARD, D, S, S, W, GET JAMMER, ATTACH BOARD TO JAMMER, E, S, SW, (PLEASE NOTE, YOUR INVENTORY MUST BE: FOIL, JAMMER, 20 PRONG FROMITZ, KEY, LAMP, GUN, KIT), DROP KIT, U, U, U, U, UNLOCK BIN WITH KEY, OPEN BIN, GET ALL, OPEN GRATING, ENTER AIR SHAFT, SET JAMMER TO 710, TURN IT ON, D, D, D, D, D, D, D, KICK GRATING, TURN OFF JAMMER, U, SHOOT FLOYD, PUT FOIL OVER PYRAMID.

Simple really!

EVEN EASIER RUNNING!

by Andy McAtear

I have just read the article in Issue 69 which is called 'EASY RUNNING' and I have written a short Basic program which I have called MAKECOM, which should make things even easier!

Type in the short program presented here and save it as MAKECOM.BAS. Then, providing that three simple steps are followed, the program will take away all the brainwork and give you 'Easy Running' programs automatically!

1. LOAD the Basic loader then LIST it back to the same disk with the extender "LIS". (e.g. "D:PODZ.LIS").
2. Ensure that the object code file has the extender "OBJ" and that both files are on the same disk.
3. RUN "D:MAKECOM.BAS" from the disk and follow the prompts.

You will be asked for the filename of the game you wish to convert. This must not have an extender. (e.g. PODZ). The program then searches through the "LIS" file for the relevant addresses. It then asks that you prepare a disk for the "COM" file. You can use the same disk, although I use a disk with a menu file on it. Hit RETURN and the file is written to disk and that's it.

```
IL 1 REM ###################################
HB 2 REM #            MAKECOM              #
NT 3 REM #              by                 #
VK 4 REM #          Andy McAtear           #
XR 5 REM # ------------------------------- #
FU 6 REM # NEW ATARI USER - FEB 1995 #
IR 7 REM ###################################
NN 8 REM
SU 10 DIM I$(120),FN$(20),T$(3),NUMS(2):M
   EM=FRE(0)-500:DIM F$(MEM):F$=" ":F$(ME
   M)=" ":F$(2)=F$:FN$="D:"
QP 20 ? CHR$(125):? :? " Enter OBJ filena
   me (NO EXTENDER)":? :? FN$;
QV 30 INPUT #16;I$:FN$(3)=I$:FN$(LEN(FN$)
   +1)=".LIS"
PU 40 OPEN #1,4,0,FN$:INPUT #1,I$:FOR L=0
    TO 2:NUM=-1:READ T$
BI 90 GOSUB 500:IF NUM=-1 THEN INPUT #1,I
   $:GOTO 90
CF 100 NUMS(L)=NUM:NEXT L:ADDLO=NUMS(0):A
   DDHI=NUMS(1):INIT=NUMS(2):CLOSE #1
JF 120 INITHI=INT(INIT/256):INITLO=INIT-I
   NITHI*256
LC 130 FN$(LEN(FN$)-2)="OBJ":OPEN #1,4,0,
   FN$
OQ 140 A=ADR(F$):AHI=INT(A/256):ALO=A-AHI
   *256:POKE 850,7:POKE 852,ALO:POKE 853,
   AHI:POKE 856,255:POKE 857,255
LD 150 X=USR(ADR("hhh■LV■"),16):P856=PEEK
   (856):P857=PEEK(857):CLOSE #1
QW 155 FIN=P856+P857*256+ADDLO+ADDHI*256-
   1:FINHI=INT(FIN/256):FINLO=FIN-FINHI*2
   56
VZ 160 FN$(LEN(FN$)-2)="COM":? :? "Prepar
   e Disk for ";FN$:? :? " and press STAR
   T "
EE 165 IF PEEK(53279)<>6 THEN 165
BP 170 OPEN #1,8,0,FN$:PUT #1,255:PUT #1,
   255:PUT #1,ADDLO:PUT #1,ADDHI:PUT #1,F
   INLO:PUT #1,FINHI
HK 180 POKE 850,11:POKE 852,ALO:POKE 853,
   AHI:POKE 856,P856:POKE 857,P857:X=USR(
   ADR("hhh■LV■"),16)
YL 190 PUT #1,224:PUT #1,2:PUT #1,225:PUT
    #1,2:PUT #1,INITLO:PUT #1,INITHI:CLOS
   E #1
YJ 200 ? :? FN$;" is now on the disk in d
   rive #1":END
IC 500 TRAP 510:FOR X=1 TO LEN(I$)-3:IF I
   $(X,X+2)=T$ THEN NUM=VAL(I$(X+4)):POP
   :RETURN
SH 510 NEXT X:RETURN
WN 600 DATA 852,853,USR
```

SIGHT AND SOUND

Chris Thorley explains exactly how to connect your Atari Classic to your VCR so that you can video your favourite games while you play or enhance your home movies

You may be wondering why anyone should want to connect their Atari to a VCR in the first place. Well, I for one regularly use mine for producing video titles for my home movies. You may also be stuck on a certain part of a game and by recording your gameplay you may be able to spot something happening on one part of the screen that could be missed when you are concentrating hard on something else. Of course, you can also use a video to provide irrefutable proof of that fabulous high score. With a good VCR, and a lot of patience, you can also produce your own animated sequences.

As you can see there are many uses that your Atari and VCR could be put to. Now, where to start?

TUNE IN

Firstly you need to tune a channel on your TV to your VCR. This may be done by using the test signal (two white vertical bars) produced by the VCR itself. Once you are satisfied that you are fully tuned in you can now connect your Atari to your VCR. This is simply achieved by connecting the switch box at the back of your Atari to the RF or aerial 'in' socket at the back of your VCR (***Diagram 1***). I should, of course, say that your Atari, VCR and TV should be turned off when making these connections!

DIAGRAM 1

TV AERIAL IN
ATARI
SWITCH BOX
VCR
RF OUT
RF IN

You should now load a program into your Atari (use a cartridge if you have one). Next, ensuring all connections are made, your VCR is tuned to your TV and you have a program loaded, turn on your TV and VCR. If you are very lucky you should now see the loaded program on your TV screen. If not, don't panic. This probably means that your Atari is not tuned in to your VCR. Select a channel on the VCR and carefully tune it until you get the picture from your Atari on the TV. Simple, isn't it?

MONITOR SOCKET PIN-OUTS

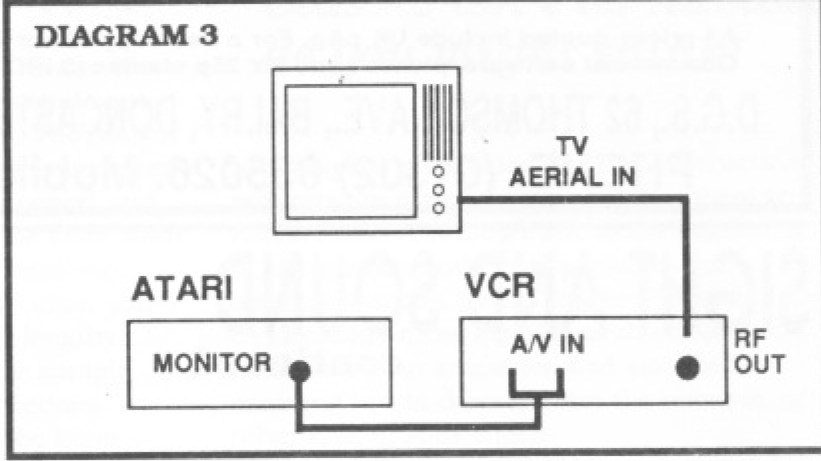
AUDIO 3
N/C 5
1 COMP. LUM
4 COMP. VIDEO
2 GROUND (SHIELD)

DIAGRAM 2

DOES IT LOOK OKAY?

Well, we've now got what we wanted. Or have we? One of the problems with this method of connection is that the output from the Atari's RF Modulator doesn't appear to be very stable, especially when connected through a VCR. You'll notice, after a short period of time, that the picture starts to drift off-tune. Evidence of this may be a bending of the picture in one of the top corners of the TV, or an increased level of background noise through the TV's speaker.

The reason for this 'drifting' is the method used to connect all these pieces of equipment together. Your Atari sends to the RF modulator a composite video signal. This is in turn converted to an RF (TV-type) signal. This signal is then received by the input circuitry of the VCR which converts this signal back down to composite video. This process is again repeated when the VCR sends a picture to the TV. The original signal from the Atari is constantly being degraded by all this processing and it comes as no surprise that another method of connection was thought of to overcome this problem.



THE MONITOR CONNECTION

The solution to this problem lies in the use of the Monitor socket, on the rear of the Atari, next to the switch box socket. Pins 3 (audio out), 2 (ground) and 4 (composite video) require connecting on a suitable 5-pin Din type

SIGHT AND SOUND

continued

plug (***Diagram 2***). These should be connected to plugs at the other end that will allow connection to your VCR. In my case they are phono type plugs, one for video and one for audio (***Diagram 3***). On connection, and selection of the correct channel since you are now using a different input path, you should notice a much more stable picture and improved sound quality. As a comparison you can leave the switch box connected and switch between the different inputs.

START RECORDING

You should now be able to make acceptable video recordings on your VCR. To get the most out of your Atari and VCR you will have to find suitable programs to run. One such program does exist that will allow you to create visual masterpieces at a stroke (well almost). That program is 'Video Title Shop', and is one that I gave a favourable review to in NAU 62. You should also give your art packages a try, maybe even recording your artistic prowess on video to show to your non-Atari owning friends.

Well, that's all for now. I would welcome any comments, critical or otherwise, regarding the article, even hints and tips on how to improve on my own efforts. Also, if you have come across any programs that would seem ideal for an Audio/Video application I would love to hear from you. One last point. I won't accept responsibility for any terminal meltdowns to computers and/or VCR's as a result of this article. If in doubt, consult a qualified person before connecting any electronic equipment together. Good luck!

GTRACKER

You don't need an ST to enjoy sampled sound - your Atari Classic isn't as humble as you might think!

Forget that boring office job. No need to win the lottery. You, too, can be a mega-rich rock star and groove into the pop scene overnight with a little help from your faithful Atari 8-bit. Well, maybe it's not quite that easy but with GTRACKER possibilities abound!

GTracker is a sequencer, which means it's a program that can play digitised sound samples in a user-specified sequence. The reason for doing this is that sound samples consume large chunks of memory (or disk space) and are therefore impractical to use for more than a few seconds. By sequencing a relatively small selection of digitised music 'clips' you can put together an impressively lengthy composition. All you need is some sample data and a set of sequence instructions. GTracker enables you to create the latter, whilst the samples must be supplied by you in 'Replay' compatible format. Four example routines are supplied.

The GTracker File Editor is required to create a 'TRS' sequence file. This file is simply a list of commands that tell the sample player which memory addresses should be used, and for how long, in order to achieve the desired sounds. There are four types of instruction, though only one of these is needed to execute the principal function - it consists of start and end memory addresses together with a speed parameter. An End instruction prompts the sample player to stop running, Restart asks it to loop back to the beginning of a sequence, and Delay performs the obvious function. The GTracker TRS File Player - located on the flip side of the disk - translates your sequence and sample files, enabling you to demonstrate the success, or otherwise, of your efforts.

That's all there is to it! It has to be said that you probably need to be 'into' sound sampling already if you want to get the most out of GTracker. It's not a complex system and it's not particularly user friendly, but you should be able to achieve some good results. Visionaire say they are hoping to release stereo and XE specific versions of GTracker soon, and updates will be offered to existing users. Public Domain disks containing sample files are also promised. Meanwhile a PD version of GTracker is available from Page 6 for those who want to see its capabilities.

GTracker may be obtained from Visionaire Software. Write to Andy Guillaume, 30A High Street, Alcester, Warwickshire, B49 5AB to order or to check the price.

● *Title:*	**GTRACKER**
○ *Publisher:*	***Visionaire Software***
○ *Format:*	***Disk***
○ *Price:*	***£5.00***

reviewed by Paul Rixon

X-STATIC

Many dedicated Atarians have the occasional desire to poke about in the innards of their computer or peripheral devices. Peter Kerrison dedicates this article to all those for whom things may have gone wrong once in a while

One area of electronics which is now showing itself to be a major 'component killer' is static electricity. Static discharges are all around us all the time, but as they have to be in excess of 3,000 volts before you feel it (that's just a tingle) and over 5,000 volts before you see it, most people don't understand the damage it can do. Static discharges cost companies hundreds of thousands of pounds a year, in fact when the problem was investigated it was found to be on a much larger scale than anyone appreciated. By examining components under a scanning electron microscope static damage is easily recognised. It was discovered that components can be degraded by static, causing pattern sensitivity (where certain bit patterns cause problems), decrease in performance characteristics, premature failure or intermittent problems. This is added to the problem of destroying the component completely.

As this 'degrading' ability of static is not fully appreciated, it is still not given the respect it deserves by the majority of people who handle components and printed circuit boards on a regular basis. Many companies are now embarking on educational programmes for their staff to teach them how to handle static sensitive devices both new and faulty (we don't want initial problems compounded by static induced problems).

The difficulty that arises in educating people to use anti-static measures is that they don't really believe in them. Oh, they will push an EPROM into conductive foam or wrap a circuit board in aluminium foil, but only for transportation. These sort of safeguards must be used every time the device is removed from it's circuit.

As VLSI chips (Very Large Scale Integration) achieve greater circuit densities the insulating layers between individual conductive paths become thinner and can therefore be damaged by relatively low voltages. Typical voltage levels necessary to damage a component are:

MOSFET	100 - 200
CMOS	250 - 2000
TTL	300 - 2500

while typical voltages generated are:

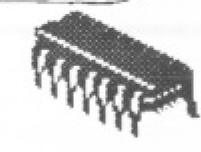
ACTION	COMMON	HIGH
Walking across carpet	12,000	39,000
Walking on vinyl floor	4,000	13,000
Working at a bench	500	2,500

To bring the problem to a personal level, this could have happened to you already without knowing. Have a think - that last chip you changed - did you touch it 2 weeks, a month, 6 weeks before? According to the latest research you could have damaged it then.

Although the generation of static electricity cannot be prevented it can be controlled in a limited area. If the item to be dealt with is conductive then the problem is very easy. Charge on a conductive material will equalise itself over the whole surface area. Merely grounding the material will remove the charge.

On non-conducting materials this practice will not work as the charge can vary greatly from one point to another. This has to be dealt with using an ionised air blower - a device which bathes the area with positive and negative ions which are attracted to the charged areas of non-conductors and cancel them out.

We can now go on to describe the measures that can be taken against static. Both in order to produce a totally static free area and also to guard against the more common static associated problems.



WHAT CAN I DO ABOUT IT?

In an ideal world

Ideally all static sensitive devices should be handled in a static safe work area. This can be defined as an area where static electricity is discharged at the same rate at which it charges. Therefore no static build up can occur. In order to achieve this we have to drain all conductive materials to earth. This can be achieved by using a conductive work surface connected to ground via a 1 MegOhm resistor (to limit current flow). You should use a conductive mat and wear a wristband - both connected to earth via 1 MegOhm resistors. This will protect the components and circuit boards from any static charge on conductive materials used in the work area.

This only takes care of the conductors. For the non-conductors an ionised air blower should be installed to completely bathe the work area. Any components or circuit boards carried away from the area should be placed in static shielding bags and sealed for complete protection. This would complete the static safe work area - at some cost it is true but for companies spending thousands of pounds on components and circuit boards it is a wise investment.

In the Real World

What about us? We can't go installing ionised air blowers, I hear you cry!! Well for the average Atarian who wants to stave off the anti-social lightning here's a few ideas.

1. Make yourself a conductive work surface that is connected to ground with a 1 MegOhm resistor. Not too tough for a bright lad like you!
2. Get a wrist-strap and use it! Something like a 3M Charge Guard 2066. It is comfortable to wear, easy to use and effective.
3. Make yourself a clip to connect between the ground of the unit you are working on and the conductive work surface. A couple of crocodile clips will do.
4. Only use a soldering iron with a grounded tip.
5. Those non-conductors? Keep them away - no exceptions! I have a picture of the damage done to a chip by a polystyrene coffee cup.

When you have seen the damage it can do, you realise that these simple precautions can save a lot of heartache.

All facts and figures supplied by 3M UK plc courtesy of their Head Office at Bracknell, England, probably the world leaders in static control.

NOSAUG PD COMPILATIONS

EDUCATION

This Public Domain tape from NOSAUG contains ten games sharing a common educational theme. They are mainly aimed at young players who have recently been introduced to the confusing world of numbers and alphabets. The programs use Basic so you can examine the listings and perhaps pick up some programming tips for no additional charge!

First up, **Spellblast** is a variation on the hangman theme. You are asked to guess and then spell a word chosen from one of three alternative categories - computers, animals, and musical instruments. The player's objective in **Alpha Run** is to manoeuvre a small vehicle over the numbers 1 to 9 or letters A to Z in sequence, whilst avoiding the screen boundary and other obstacles. Meanwhile **Alphabet Train** presents a fun way to learn spelling. A word is displayed and the player selects corresponding letters from railway wagons which scroll horizontally into view. Correct letters are deposited onto a truck and if there are no mistakes the word is whisked off screen to make room for the next one.

The Counting Game asks, simply, how many symbols are shown? Success is rewarded by a cheery jingle and graphical sequence. **Marathon Maths** involves a race between two players. The first one to highlight the solution to a multiple choice maths questions gains several paces towards a finishing post. If the answer's wrong however, the opponent gains ground instead. In **Math Attack** you can select the type of questions (multiplication, division etc.) and also maximum values. The program generates problems and waits while you enter the results.

Copy Cat is an exceedingly addictive (well I was hooked!) 'Simon Says' game. Using a joystick, you have to repeat the demonstrated sequence of coloured lights and corresponding sounds. **The Reading Program** is another memory jogger intended for slightly older users. A short story is displayed and then removed from view. You must answer questions based on the story - not as easy as you think! Next, **Fun With Words** comprises an anagram quiz and a simple hangman game. Last (and also least) is **Guess My Number**, a space filler that requires you to guess a number(!).

In the event that you don't find any of these programs useful, the good news is that they're supplied on a good quality C60 cassette!

- *Title:* ***C12: EDUCATION***
- *Publisher:* ***NOSAUG***
- *Format:* ***Cassette***
- *Price:* ***£2.95***

Reviewed by Paul Rixon

UTILITIES 2

If you want to draw, compose music, print cassette inlays, calculate exchange rates, cheat at arcade games or design video titles, **UTILITIES 2** from the NOSAUG PD cassette library is one for you!

Artistic types will enjoy **Keystroke Artist**, a drawing tool based upon straightforward keystroke commands. It may not be feature packed but it's not bad for a quick doodle. Antic Magazine's **Antic Music Processor** is well regarded by disk users but has not previously been released on cassette. Thanks to some hard work by NOSAUG, anyone can now sample the musical delights of this excellent machine code utility. It enables tunes to be composed, quickly and with minimal effort, by anyone who can read sheet music. The music player utilises all available voices over a range of five and a half octaves, and is accompanied by an attractive light bar display. Four good tunes are also supplied on tape.

With the help of **Current Exchange** you can discover how much your foreign currency is worth, but first you'll need to type in the up-to-date exchange rates. Why not use a calculator instead? On a more practical note, the **1020 Cassette Inlay Maker** is - as its name suggests - for 1020 plotter users. Its function is to create blank inlays for placing inside cassette boxes - handy if you need to re-use old tapes.

If you're keen on arcade games but find them too hard, **The Tapester** (originally published by NAU) claims to have an answer - that is, if your game is one of the fourteen recognised titles. All you do is choose the game that's giving you grief, run The Tapester and then load up the game itself. In Batty Builders you become immune to bricks and dynamite, in Panther you gain infinite lives and in Hover Bovver you can start at level sixteen! Finally, **Video Titler** allows pages of text to be input and saved in a sequence to record for your video intros and credits. The text is faded out gradually to give your titles a professional appearance. Printed instructions provide hints on the technicalities of video connections and editing techniques.

Overall, Utilities 2 is a mixed bag but is worth having for the Antic Music Processor alone. Contact NOSAUG for details of other PD tapes available.

- *Title:* ***C09: UTILITIES 2***
- *Publisher:* ***NOSAUG***
- *Format:* ***Cassette***
- *Price:* ***£2.95***

Reviewed by Paul Rixon

TUTORIAL TIME

by Ian Finlayson

DAISY-DOT II
GOING DEEPER

In issue 69 I gave an introduction to the use of Daisy Dot II, and at the same time John Bunting described how to use Daisy Dot in a much more advanced way with Page 6 Writer and Spartados. If you have hardware that will accommodate a RAM disk it is a good idea to experiment with it - you will find you can gain significant speed increases with any program that accesses the disk drive regularly as disk access to the RAM disk is almost instantaneous. Anyhow I will continue at a more basic level expanding on my last article and showing how to change the format of your document on the fly.

We saw in issue 69 how to set the overall format of the document as you prepare to print it. These various formats and fonts can be turned on and off inside your document if you want to highlight a word or sentence by boldening, italicising or centring for example. There are 17 commands which can be embedded, and all are done in a similar way. Go back to your favourite word processor - the commands have to be put into your text before you go to DDII for printing.

A SIMPLE EXAMPLE

Lets take one specific example before looking at all the available commands. We will embolden and underline the phrase "within 7 days" in the sentence "Your reply is required within 7 days or further action may be taken!"

To start to insert a command in your text all you have to do is type a backslash \. You may not find this as easy as you expect! In Textpro, for instance, [SHIFT]\ moves the cursor back one word! You have to type [ESC][SHIFT]\ to put the backslash into your document. If you are using another word processor that has a special function attached to the [SHIFT]\ combination look in the detailed instructions to find out how to generate a \ on its own.

After the backslash you type the required command string. Don't worry about upper or lower case letters, both are treated the same by DDII. The command for bold is B and for underline is U. Both these are "toggle" commands - that means you use the same command to turn the feature on and to turn it off. So to get the format we want for our sentence it should look like this:

"Your reply is required \U\Bwithin 7 days\U\B or further action may be taken!"

GENERAL USE

Embedding other commands is done in the same way, though they are not all just a single character. You can see in the table the form of each command. The italic script in brackets shows what kind of input is acceptable. Do not type the brackets and do not leave any blank spaces that are not part of the original text as DDII considers spaces to be part of the text, not part of the embedded commands.

A word of caution about the embedded formatting commands is necessary. Although DDII ignores these your word processor does not, so if you put long commands into a text line your word processor will treat them as text and insert a carriage return to start a new line. When DDII removes the formatting command the line can become too short and it will look rather peculiar. If you want to avoid this problem try as far as possible to add format paragraph by paragraph. The commands can then be put in on the blank

DAISYDOT 2 - Embedded Commands

Action	Form	Notes
Font change	\F *{D:Filename.Ext}*	Dx:Filename.Ext is name of font file (must be available to DDII at print time). DDII assumes .NLQ if Ext is omitted
Density change	\D*{1-4}*	1 - Single, 2 - Double, 3 - Double Draft, 4 - Quadruple
Spacing change	\S*{0-9 or A-K}*	From 0 - no space to 9 approx. 1.5 characters spacing
Left Align	\L	
Centring	\C	
Right Align	\R	
Justify	\J	Makes both left and right margins straight. Do not justify last line of a paragraph (add \L at end of paragraph)
Right Margin	\M*{0-9 or A}*	1 - 0.5", 2 - 1", 3 1.5" etc. 0 - none, A - 5" (on 8.5" paper)
Bold	\B	toggle
Double Wide	\W	toggle
Underline	\U	toggle
Append	\A*{Dx:Filename.Ext}*	Insert on its own line - Chains text of Dx:Filename.Ext at end of document
Position Tab	\P	Sets a Tab at current column position
Execute Tab	\T	Adds spaces to next tab stop
Erase Tabs	\E	Erases all Tab Settings
Include file Verbatim	\V*{Dx:Filename.Ext}*	Includes file Dx:Filename.Ext byte by byte in the document (e.g. to embed picture file)
New Page	\N	Forces start of new page

line between paragraphs. This is particularly important for the long commands - those that include a filename. Where it is essential to format small bits of text within a paragraph try not to use too many commands at once. For example \B\U\D1 to turn on Bold, Underlined, Single density text followed by \B\U\D2 to revert to normal effectively adds two seven letter "words" to the line in your word processor.

DaisyDot II does not have a WYSIWYG (what you see is what you get) capability so inevitably there has to be a bit of trial and error. Keep some old paper handy for your first print out and check that the layout is entirely satisfactory before printing final copy. At first it may seem a bit tedious but you will soon gain experience and the improved final appearance of your document is well worth the effort.

DETAILED NOTES

I do not expect you to want many \ characters in your documents (unless you are going to write an article about DDII!!) but if you do it can be achieved by preceding each \ with another \. So \\ prints as \ and \\\\ prints as \\.

Most of the embedded format commands are easy to use if you follow what is in the table, but one or two are probably not fully self explanatory so here are a few amplifying notes.

ALIGNMENT - The individual commands are probably self explanatory, but it may not be so obvious that you can use more than one alignment command in the same line. Let's take an example. If you are writing a long document you may like to have a top line on each page which has the Chapter number on the left the document name in the centre and the page number on the right. This can be done as follows:

\LChapter1**\C**My Autobiography**\R**Page 1

Start the next line with the alignment command that is in use in the main body of the document (**\J** or **\L** usually). If your word processor has the ability for headers and footers you can put a line like this into the header to be automatically printed on every page.

TABS - Aligning text correctly in columns can be difficult if you try to do it with spaces, but DDII makes it easy. First turn off existing tabs with **\E**. Then as you type in the headings for your columns you can set up the tabs, for example:

SURNAME **\P**FORENAME **\P**ADDRESS

Now as you type in the text for the columns just put in the \Ts to align to the tabs:

Finlayson**\T**Ian**\T**60 Roundstone Crescent

Easy isn't it? Just one further point - if you want to centre or right justify the whole block of columns it is essential that each line is the same length - otherwise everything will turn out ragged again. To achieve this just put an extra **\P** at the end of the first (heading) line at the point where you want the line to end and a **\T** at the end of all the other lines.

GRAPHICS - Embedding a graphic is possible using **\V**, but this is something I have not yet tried. There is a Basic program on side B of the DDII disk called Billboard. This allows you to change the size of Micropainter files to suit your document. As I understand it the graphics capability only allows full width graphics - DDII can not wrap text around a graphic. If you have used graphics in DDII why not write a short article or a letter to New Atari User and share your experience.

That's all for this time. I will go on to the DDII font editor and other extras in the next time. Meanwhile if you have any specific tips or questions about DDII please write to me, ***Ian Finlayson***, at ***60 Roundstone Crescent, East Preston, West Sussex BN16 1DQ*** and I will try to include you in the next article.

ROM CARTRIDGES

All brand new in original boxes, mostly shrink wrapped

ONE ON ONE

Play basketball with two of America's top players in this great sports simulation which features realistic offensive and defensive moves, fatigue factors, hot streaks, a shot clock, even instant replay and a shattering backboard! Like the game of basketball itself, One-on-One rewards you for playing with your head as well as your hands. Master the joystick moves, sharpen your timing and hone your reflexes. Jump! Shoot! Score!

OUR PRICE £6.00

US FOOTBALL

American Football is a big craze in this country and you can now play at home. Outsmart the defence, pass with amazing accuracy, run with speed and agility, make tackles, select offensive and defensive plays and more. You can take on the computer in a practice game or challenge a friend to a dramatic video bowl game of your own in a packed stadium. All the thrills of the gridiron

OUR PRICE £6.00

SUPER BREAKOUT

Breakout was the original simple yet totally addictive game and this enhanced version will provide even more addictive fun. Needs paddles.

OUR PRICE £3.95

There are very few ROM cartridges left now for the Atari - complete your collection while you can

FIGHT NIGHT

Fight Night brings you all the thrills of the boxing ring as you face five of the most brutal fighters ever. Its five separate battles are total war with relentless action. The Boxing Constructor Set allows you and your opponent to create your own perfect boxers, selecting stamina, intellect and style. Train, spar and step into the ring to pit your perfect boxer against the computer or another opponent.

OUR PRICE £6.00

POLE POSITION

Everyone has heard of Pole Position, the racing game that inspired almost every racing game since. It may be the original and some other games may have added features but Pole Position still retains its challenge after many years. One of those games that has exactly the right balance of game play and graphics to make it a classic that will last forever. If it is not in your collection, make amends now!

OUR PRICE £5.00

HARDBALL

All the thrills of American baseball can be yours on a summer afternoon in the ballpark. Sit behind home plate, along the left field line, down the right field line or join the manager in the dugout. Look over the pitcher's shoulder as he throws the next ball. You control all the action of the batsmen, pitchers and fielders as you try and battle your way to the top of the league. An exciting game for one or two players.

OUR PRICE £6.00

BASIC CARTRIDGE

Some programs, especially some early public domain programs won't run on the XL/XE but they will if you plug in the old version of Basic.

OUR PRICE £2.95

DISKS ...

SILICON DREAMS

Taking the role of Kim Kimberley you are a leading participant in the colonisation of Eden, a planet prepared for human habitation by an advance guard of intelligent robots who battle with the native and highly aggressive fauna. In this highly structured and realistic environment you must move your mind into the twenty-third century. Silicon Dreams is three excellent graphics adventures - SNOWBALL, RETURN TO EDEN and THE WORM IN PARADISE from the masters, Level 9

OUR PRICE £5.00

ZORK 1

The Infocom classic and the adventure game that changed the way all future adventures were written. The Great Underground Empire of Zork is well documented by now and thousands of players have become addicts graduating to Infocom's more difficult adventures. Zork I is the ideal introductory level adventure for beginners or those with a little experience. If you have never ventured underground before now is the time to try, it's never been cheaper to expand your universe! Classic original Infocom packaging with excellent manual and a map.

OUR PRICE £2.95

DISKS ... DISKS ...

PANZER GRENADIERS

In this exciting solitaire wargame you make the decisions for a regiment of the elite armoured infantry attached to the Panzer Grenadiers. Your forces also include mortar, artillery, Panzer IV, Panther and Tiger units. The Russian enemy is directed by the computer which will fiercely challenge you with its own complement of infantry, tanks and anti-tank guns. Three levels of difficulty, joystick control, hi-res graphics.

OUR PRICE £5.00

LANCELOT

Level 9 recreate the time of wizards and the Knights of the Round Table in a three part adventure spanning the complete saga of the quest for the Holy Grail. Superbly researched and superbly written this text adventure is full of atmosphere and highly recommended.

OUR PRICE £5.00

RAMPAGE

It's rough and tumble all the way as you control three incredibly nasty characters which bear a remarkable resemblance to King Kong, Godzilla and Wolf-man through an orgy of destruction in Chicago, New York and San Francisco. You have 150 days of destruction in 50 different cities. Time for some revenge!

OUR PRICE £3.95

THE E FACTOR

The E factor represents the amount of time the energy sources on the planets in our galaxy will last. Many planets need emergency fuel capsules delivered if they are to survive. You must plot the interplanetary course and guide your craft through the quadrants filled with obstacles such as space mines, alien fighters and spinning asteroids. Can you complete a mission before another planet calls on your services?

OUR PRICE £3.00

DRUID

Another classic in which, as Last of the Great Druids, you wander through the Dungeons of Acamantor with your mighty Golem by your side on a quest to destroy the four demon princes. As you delve deeper into the dungeons you will find chests containing spells of formidable power to aid you and Pentograms of Life which will heal and revitalise you. Excellent graphics and superb gameplay make this one of the best arcade games.

OUR PRICE £3.95

GAUNTLET THE DEEPER DUNGEONS

If you have the original Gauntlet disk then you will know how good the game is and will want to extend play with the Deeper Dungeons. Over 500 new dungeons are here for you to explore. This is the way to revive your interest in Gauntlet and play on for many more hours or days! This is a data disk only and requires the original Gauntlet disk.

OUR PRICE £2.95

NEW YORK CITY

Welcome to The Big Apple. This hurried jungle of steel, concrete and glass bristles with fascinating sights and more than its share of danger. From the placid greenery of Central Park, there is no city in the world like New York, and boy are you about to find that out! As a visiting tourist you only have a limited time to see all the sights, but New York City has a little more excitement, a little more danger in store than a mere sightseeing trip to the zoo!

OUR PRICE £3.95

BALLBLAZER

The year is 3097 and you are the contestant in the most competitive and by far the most popular sport in the universe. Jump immediately into head-to-head action against a friend or hone your skills against a selection of Droids. Either way, you're in for the match of the century! Excellent graphics and split screen action have made this one of the Atari classics.

OUR PRICE £3.95

JUNO FIRST

A fast and furious space shoot 'em up translated from Konami's early arcade machine of the same name. Dozens of alien craft will attack from all sides and you must be quick to blast them away and earn your bonuses. If you feel that you are going to die then you can take the last resort and warp away through a kaleidoscope of colour. Similar to invaders, this fast shoot 'em up will appeal to any arcade game fanatic.

OUR PRICE £3.95

JUGGLES RAINBOW

A first computer experience for children aged 3 to 6 that teaches the concepts of above, below, left and right plus letter recognition allowing children to enjoy learning with colours and music and games they can create and play themselves

OUR PRICE £2.95

THE LIVING DAYLIGHTS

Control James Bond through eight fast and furious levels from Gibraltar to Afghanistan and you will encounter the SAS (friendly), the KGB (not so friendly) and enemy helicopters (very unfriendly!). You are up against Brad Whittaker, international arms dealer and megalomaniac, Necros, his ruthless sidekick and Koshkov, the double dealing KGB General. You may fall in love with the beautiful Czech cellist Kara, but can you trust her?

OUR PRICE £2.95

NIBBLER

Slinking through an unknown land Nibbler finds himself in an iridescent world of constant change. As time grows short his body grows longer and he risks running into himself. Can he survive?

OUR PRICE £1.00

CASSETTES at just 95p each!

180
A great darts challenge. Eight opponents, digitised speech, two player option. live joystick control, full matchplay scoring, a sense of humour, superb playability.

BOMB FUSION
A terrorist gang has planted bombs throughout the Sellerscale Nuclear Processing Plant and you have to go in and save the plant and possibly the Northern Hemisphere from destruction

DESPATCH RIDER
Join the growing band of street demons who terrify the population of the big cities to get the parcels through. Plan your moves to make some money, but don't take too long - time is always short. Gain an instant macho rating and be a despatch rider with this simulation

FEUD
To win at Feud you must "out-spell" your rival Wizard Leanoric. In Kieke's herb garden you will find the ingredients for your spells but tread carefully as strange things can happen in this game of magic and mystery

FOOTBALL MANAGER
Features include Transfer Market; full League tables; injuries; save game facility; promotion and relegation; FA Cup matches; managerial rating; 4 divisions; as many seasons and you like; pick your team using seven skill levels.

GHOSTBUSTERS
Has anybody seen a ghost? Matter of fact yes they have! At this very moment hundreds of ghosts are making their way to the infamous spook central. Only you can save the world from a disaster of biblical proportions.

GUN LAW
Four months of bloody alien attacks have taken their toll - all the surviving inhabitants have fled and arson attacks have been made on your weapon stores. You are left to fight alone against ruthless and bloodthirsty killers with just a single machine gun

HENRY'S HOUSE
Little Henry has shrunk. He must navigate his way through the royal household to find the cure. Avoiding all the obstacles in his path, from terrible toothbrushes, through pestiferous parrots and chefs chasing chickens, to a final encounter with the vicious vampire!

INVASION
Mobilize your units and prepare for battle. This all action space conflict requires skill, strategy and tactics. You must destroy the weather control station in order to win the battle but every move you make the enemy will counter, and they're waiting for you to slip up

KIKSTART
The ultimate off-road motorbike scramble simulator. Guide your rider carefully over the obstacles in this all action simulator for 1 player against the computer or 2 players against each other as well as the clock

KNOCKOUT BOXING
Challenge for the Heavyweight Championship of the World by boxing your way past nine progressively more skilful opponents. You will need speed and skill to deliver stomach punches, points scoring head jabs or deadly upper cuts. Your must keep your guard up or the referee will count you out.

LOS ANGELES SWAT
Rescue the hostages from the terrorist gangs holding out in West L.A. Clean up the streets. Blow away the bad guys and be a hero on network T.V.! Fail and you won't be coming back to watch it. All action joystick bending combat for those with the skill to survive!

MILK RACE
Cycling 1,000 miles is no mean feat - and you could end up feeling pretty exhausted by the time you've finished playing this superb race simulation designed with the Milk Race in mind

MR DIG
An old favourite in which Mr Dig has to dig for hidden food supplies in the 'Meanie' territory below ground. As he digs he can eat cherries or crush the Meanies with apples. Special treats earn extra points and a Magic Power Orb can kill all the Meanies.

NINJA
Blasts the belt off all other martial arts games! That's all it says on the inlay! Someone sure reckons this is the best punching, kicking, ducking and diving game around

ON CUE
A challenging real life simulation which combines Pool and Snooker on the same cassette. An absolute must for both enthusiasts and beginners alike. If you have ever wanted to be at the Crucible now's your chance

PANTHER
Save the last humans on Xenon before the alien hordes turn them into Sunday roast! Take your ground attack ship through this 3D scrolling mega shoot-em-up with great graphics and unbelievable soundtrack

PENGON
Can you save Penguin Willy from the ferocious mutant sea lions? Stun them by knocking them against the walls or crush them to a horrifying death with sliding ice blocks. High speed arcade action game, great graphics and music.

PLASTRON
Take your place in a small band of pirates out to steal fossil fuels from the biggest corporation in the galaxy. You must guide your shuttle craft along the surface of the planet Plastron to collect as much fuel as you can from the heavily defended mine zones and then rendezvous with the supply tank

PROTECTOR
Assigned to Fort Rucker, the US Army Helicopter Training School your aim is to become the best chopper pilot this side of the Iron curtain. Your mission consists of a strategic battle of wits between yourself and either another pilot or a computer controlled RPV

ROGUE
You are the ROGUE. Your mission is to search the Dungeons of Doom for the Amulet of Yendor. In the dungeons you will find many things to aid the quest for the Amulet. You will also encounter fearsome monsters and fiendish traps that will challenge all your skills

REVENGE II
The Mutated 90 foot high, laser spitting death camels have rebelled against their captors the Zzyaxians and are out for revenge! All action, highly graphical shoot-em-up from Jeff Minter

ROCKFORD
The only true arcade version of the classic game Boulderdash. There are four levels on each of five different worlds with four screens on each level. It all adds up to eighty totally different playing screens.

SIDEWINDER II
It is 27 years since the final battle of the war with the aliens. 27 years of peace have reigned in the Western Spiral Arm of the Galaxy. All this is about to change. Step aboard your craft and prepare to defend mankind in this all action space blast

SPEED HAWK
A smoothly scrolling arcade game in which you must defend the ring worlds of your solar system from space pirates. You alone can pilot the single seater fighter to undertake the task of destroying the mutant guardian that protects the fleet of pirate ships

SPEED ZONE
Enter the Speedzone in a frantic defence against marauding alien forces. A survey ship sent into the area comes under attack. As an enemy vessel draws closer your "STARFIRE" class attack craft is launched

MORE 95p CASSETTES ON THE NEXT PAGE ☞

CASSETTES ...

SILICON DREAMS
Taking the role of Kim Kimberley you are a leading participant in the colonisation of Eden, a planet prepared for human habitation by an advance guard of intelligent robots who battle with the native and highly aggressive fauna. In this highly structured and realistic environment you must move your mind into the twenty-third century. Silicon Dreams is three excellent graphics adventures - SNOWBALL, RETURN TO EDEN and THE WORM IN PARADISE from the masters, Level 9

OUR PRICE £5.00

DECISION IN THE DESERT
Take command at the Battle of El Alamein. You can lead either side in this accurate simulation from the creators of F-15 Strike Eagle

OUR PRICE £5.00

LANCELOT
Level 9 recreate the time of wizards and the Knights of the Round Table in a three part adventure spanning the complete saga of the quest for the Holy Grail. Superbly researched and superbly written this text adventure is full of atmosphere and highly recommended.

OUR PRICE £5.00

BATTALION COMMANDER
An exciting real-time tactical game with you as lieutenant colonel in charge of an entire armoured battalion. Choose from five different scenarios from a training mission against a Soviet tank battalion to tough assignments against the Chinese. You can adjust the relative strengths of your forces and the opposition and choose from 40 different maps and 5 different scenarios

OUR PRICE £2.95

MORE 95 p CASSETTES

STAR RAIDERS
Battle against the the Zylon empire in your star ship in what is probably the most famous computer game ever. This full version of the classic game is now available on cassette complete with full instructions. Can you afford to be without the program that people bought an Atari for?

TAIL OF BETA LYRAE
Our A-Z of Atari Software series says "The ultimate 'Scramble' clone with superb graphics and music." A great horizontal scroller

TWILIGHT WORLD
Enter the Twilight World. Equipped with the latest in anti-gravity pods and Laser weaponry, battle your way through each of the eleven dungeons defeating their fiendishly devious inhabitants along the way. A game from Atari themselves!

UNIVERSAL HERO
Only seven seconds left to save the planet! Universal Hero has to save his skin and everybody else's by finding bits to repair a shuttle to get to a planet to pick up the spares to mend a space freighter which is out of control and about to blow him and his chances of getting back to earth to atoms.

CROSSFIRE
You are alone in a deserted city surrounded by aliens who shoot lasers from every direction. You'll have to concentrate on where the shots are coming from otherwise you'll be caught in the CROSSFIRE. One of those fairly simple yet highly addictive games.

OUR PRICE £2.95

COLOSSUS CHESS 4
Claims to be the best chess program of all. The writers of Sargon III would disagree, but there is no doubt this is a fine chess simulation particularly for advanced players

OUR PRICE £2.95

ST SOFTWARE

MUGSHOT
Have some fun with your ST creating lots of hilarious 'mugshots' to entertain your family and friends

- ★ *Extremely easy to use*
- ★ *Full documentation*
- ★ *Several Print options*
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MAKING MUSIC

with John S Davison

MIDI FUTUREPROOFING

MIDI has now been with us for a long time, around eleven years in fact, and it's a tribute to its designers that it's managed to keep up with users' requirements during this time. They knew it was unrealistic to try to think of every possible function to include in the original specification, as unforeseeable requirements were bound to arise once MIDI got out into the real world and people began using it in anger. A degree of "futureproofing" was required to allow additions to be made later, and they delivered this through the "System Exclusive" class of MIDI messages.

Actually, futureproofing wasn't originally the prime role of System Exclusive, but it's turned out to be a convenient vehicle for delivering extensions subsequently made to the basic MIDI specification. Its original intended use was to provide an open-ended means of supporting manufacturer specific hardware features found on particular makes of synthesisers, drum machines, and other MIDI devices. These included the uploading and downloading of single voices or banks of voices between a storage device and synthesiser, and remote editing of voice parameters to produce new patches. However, there are now two subclasses of System Exclusive - those used for manufacturer specific operations, and the so-called "Universal" operations through which major MIDI extensions have been implemented.

Different manufacturers use their own proprietary methods of handling things like dumping voice patches and voice patch editing, to fit in with their own internal hardware design. MIDI doesn't specify or restrict the hardware design or architecture of the devices using it, so this doesn't transgress any MIDI standards. It does mean that manufacturers can take advantage of any new developments in sound generation technology in new models, so this too in its way can be thought of as futureproofing from the hardware aspect. A brand new synthesiser model using a completely unique, innovative method of generating its sounds will still work with the basic MIDI functions - but specific support software then has to be written using System Exclusive to achieve the type of voice patch library and editing functions mentioned above. Let's take a quick look at how this works, using a voice dump message for an E-mu Proteus synthesiser as an example.

SYSTEM EXCLUSIVE

System Exclusive messages form part of the MIDI message stream like any other message, so the first requirement is that they should identify themselves. This is achieved by a special System Exclusive status byte having the hexadecimal value F0, which effectively warns the system that what follows may be specific to a particular manufacturer's device. Following this the message needs to indicate the manufacturer and model of device involved in the operation. A specific hexadecimal code value has been allocated to each registered manufacturer, for example 41 for Roland, 43 for Yamaha, and 18 for E-mu. Device model is also coded, and the Proteus may be identified by the value 04, for example. There may be more than one Proteus synthesiser in your system, and this is handled by allocating a single byte serial number to each one. Then by including the appropriate serial number in the message the operation can be aimed at the required device, and will be ignored by all other devices in the system. Together, these items represent the System Exclusive "header".

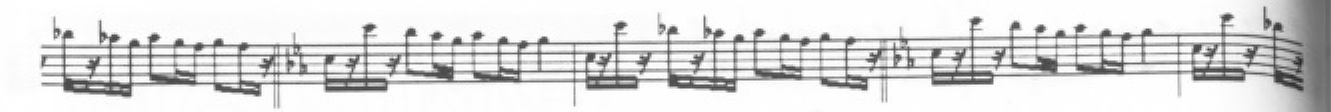
Beyond this header the content may vary depending on the requirements of the operation. In our example the next byte would be a code indicating that the data following represents Proteus preset voice data, and after this would be sets of data fields carrying the preset voice number and parameter values defining it as required by the Proteus sound generation architecture. Finally, a marker is needed to indicate that the end of System Exclusive data has been reached, achieved via a status byte with the value hexadecimal F7.

There's one more thing usually included in System Exclusive messages carrying lots of data - and that's a simple form of error detection. MIDI cables aren't the most reliable means of transferring data from one device to another, so some means of detecting transmission errors is needed. This is usually achieved via a simple checksum technique, for example summing the value of all data bytes, dividing the result by 128, and using the remainder as the checksum value. The sending device appends this value to the end of the data and the receiving device recalculates the checksum from the data it receives and compares it with the appended value. If the two agree, then the data transfer is deemed to be correct and the receiving device sends a positive acknowledgment (ACK) message to the sender. If not, an error has occurred and the receiver sends a negative acknowledgment (NAK) to the sender and transmission then has to be repeated until an equal checksum comparison is obtained.

UNIVERSAL OPERATIONS

The other subclass of Systems Exclusive messages cover Universal operations, and these are further subdivided into three types, known as Non-Commercial, Non-Realtime, and Realtime. The first named is used typically in educational applications so won't be discussed further here, but we'll see examples of the other two shortly. In fact, I've already mentioned two Universal Non-Realtime messages - the ACK and NAK messages cited above. They apply to data transfers between any two devices, no matter who manufactured them, and hence are "universal" in scope.

When samplers arrived on the music making scene a few years back they brought a new problem with them. The raw material for sound generation wasn't just a bunch of pa-



rameters required by a particular synthesiser's architecture, but also included "digital recordings" of the sounds themselves. And guess what? Different manufacturers use different formats to internally store all this sample data, so transferring (a.k.a. dumping) sounds from Sampler X into Sampler Y (of a different make) doesn't usually work. It's possible to record Sampler X's sounds onto audio tape and then resample them into Sampler Y, but there's an unacceptable loss in sound quality using this method. The answer is to use a "Sample Dump Standard" (SDS) to allow direct transfer of samples in a common format from one device to another via MIDI, and this has been added to MIDI as a Universal Non-Realtime System Exclusive based function.

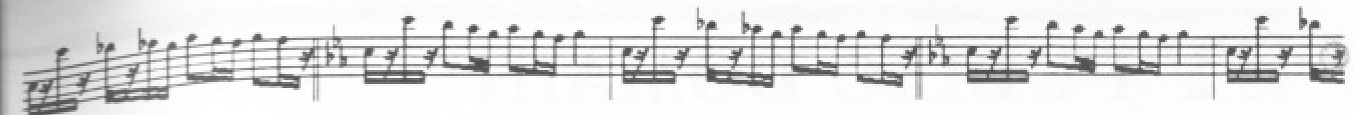
A typical dialogue between two MIDI devices involved in an SDS transfer begins with an SDS dump request from the dump receiver to the dump sender. The dump sender responds with a dump header containing the basic physical details about the dump, such as number of bits in each sample, sample rate, sample length, loop points, and similar - enough to enable the receiver to reconstitute the sample in its own internal format. This is followed by a series of "data packets", each carrying 120 bytes of sample data plus appended checksum for error checking. The usual ACK/NAK interchange takes place following the transmission of each packet as required to achieve a successful sample transfer from one device to the other.

All of these are Universal Non-Realtime System Exclusive messages, as the data is in a standard format by the time it's transmitted. But there's a slight snag. How does the data get into that format? The answer is that each manufacturer has to include appropriate code to support SDS within the operating system of the device. Because of the compromises made in its implementation not all manufacturers have given their support to SDS, which means it isn't the panacea everyone was hoping for. But, it does work between devices that support it, and has proved very useful to sampler users needing this type of function.

MIDI TIME CODE

As mentioned in the last issue professional music, film, and video studios tend to use SMPTE timecode for synchronising together various pieces of audio, film, and video recording equipment. When MIDI gained wide acceptance these studios needed to integrate it into their existing working methods so it too needed to embrace SMPTE timecode, but MIDI wasn't designed with this in mind. The original solution was to build special synchronising equipment which read externally generated SMPTE code and converted it in-flight to MIDI clock and Song Position Pointer messages. This was expensive, and also tedious to use as SMPTE knows nothing about tempos, so tempo maps of each MIDI song also had to be built and input to the synchroniser for setting and changing the song's tempos at the appropriate points. Smooth tempo changes for accelerandos or rallentandos were not easy to achieve. Also, MIDI had no means of directly handling the hours, minutes, seconds, and frames timestamp format that SMPTE uses, which made life very difficult for those wanting to synchronise MIDI soundtracks with SMPTE encoded film or video sequences. The answer was another MIDI extension known as MIDI Time Code (MTC) - again achieved via System Exclusive.

Actually, MTC isn't itself a timecode. It's really just a mechanism by which SMPTE timecode can be carried inside a MIDI system. And once there, any software timestamping of MIDI events (e.g. as in a sequencer) can be made to work in terms of the same units and hence permit synchronisation with external SMPTE devices. MTC has been added to MIDI as a Universal Realtime System Exclusive based function - plus a special message in the System Common class. These allow timing/positioning information in SMPTE format to be sent round a MIDI system just like MIDI



clock and SPP messages, allowing the required integration of MIDI and existing professional audio-visual operations.

An SMPTE interface is still required between a computer system and external SMPTE equipment, but this tends to be less expensive and easier to use than the old pre-MTC synchronising kit. It also usually incorporates the facility for striping a tape track with SMPTE timecode, so this hardware provides a user with a self-contained SMPTE facility when used with an MTC equipped sequencer package and multi-track tape recorder. The major ST MIDI software manufacturers such as E-Magic (for Creator/Notator) and Steinberg (for Cubase) produce SMPTE interfaces to complement their sequencers.

MTC SETUP

Another flavour of MTC is used for linking specific MIDI events to given SMPTE frame positions. This is similar in some ways to the "soundtracker" programs available for the ST, in that you compile a "cue list" defining events you want to happen at specific times. The soundtracker program is normally used to fire off musical samples or sound effects to perform a piece of music, but its MTC cousin has a much wider scope. Not only can it trigger a sampler, but it can also perform such tasks as remotely controlling the operation of a multi-track tape recorder or CD player via MIDI messages. Of course, these devices need a suitable control interface to enable this to happen, but many items of studio equipment now have these fitted as standard or as an option.

Communication between the devices involved is handled by the MTC Setup facility, implemented via Universal Non-Realtime System Exclusive messages. Event timing is available to an accuracy of one hundredth of a frame and data sent can include strings of MIDI data for whatever purpose you require. This whole area is probably overkill for amateur use, but is very important in the professional world. Also, it does mean that the amateur can start out using a subset of the techniques the professionals use then expand into the higher realms of MIDI as his talents, aspirations, and requirements grow. And that's no bad thing for the budding recording stars of tomorrow.

ST PUBLIC DOMAIN ROUNDUP



COIN-OP CLASSICS

If you want to play classic coin-op games on your ST then check out the many titles available as public domain or shareware. The Page 6 ST Library features many impressive coin-op clones. In this issue's PD Roundup I will examine some of the best titles available. So let's boot up your ST and travel back to the early 1980s when games oozed playability and 10p's were 10p's!

by Stuart Murray

DEFENDER

Defender is the original shoot-em-up! In it you had to protect humanoids by destroying wave upon wave of alien crafts with your spaceship 'Defender'.

For Defender freaks there is ***OFFENDER*** (1MB) - an almost exact clone of the arcade coin-op. The vector landscape, scanner, laser beams, smart bombs, humanoids, landers, pods, etc. are all there, along with digitized sound effects. The gameplay is a touch sluggish but certainly fast enough to keep you blasting.

CYBERNETIX is a fast, smooth and glossy version of Defender. The gameplay suffers slightly in that it doesn't feature the element of defending humanoids. The objective is simply to blast or die! However, there is the advantage of multiple power-ups.

Cybernetix boasts digitized sound and speech, colourful graphics (the spinning 3D asteroids are particularly impressive), lots of different aliens and killer gameplay! Impressive, frenetic and challenging, this one will stay in your drive for ages!

ASTEROIDS

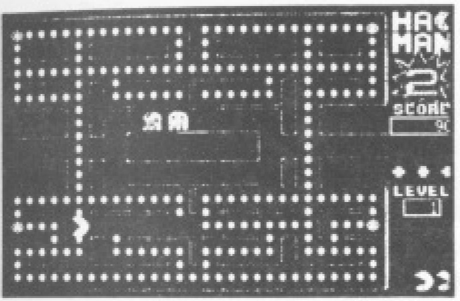
Asteroids holds great affection for me. I must have spent a fortune in ten pence pieces playing the original coin-op. The concept, like all great games, was simple. Destroy the circling asteroids with your ship before they crash into you. The coin-op featured simple vector graphics with little more than a few "bleeps" and "bangs" for sound effects. However, it was addictive in the extreme!

ASTEROIDS is written by those protectors of the classic coin-op, Sinister Developments. This clone brought the memories flooding back. It is based heavily on the original. The jaggy, vector graphics and sparse sound effects create the "feel" of an old arcade machine. The gameplay is fun and addictive, although perhaps a little too fast early on. Even the enemy spaceships look like the originals!

PACMAN

No need to describe this old friend! Pacman took the world by storm back in 1982 and is still a great game today.

PACMAN ST was featured the last time PD Roundup reviewed games (Oct/Nov 1993). It is the closest version to the coin-op and is an essential addition to your software collection!



For something a little different check out ***HACMAN II*** (1MB). This is an amazing Pacman clone with 100 levels, digitized sound and surprises by the barrow load! There are six ghosts plus cameo appearances by other creatures. The levels are creatively designed with each having a personality of its own, e.g. the level entitled 'Doctor Who' features Daleks and "Exterminate!" samples. Other highlights include puzzle boards, secret warps and a rather novel 'Kill to Eaten' ratio for each ghost. The gameplay is smooth and responsive. The constant changes keep the game fresh. Hacman II is Pacman with personality.

MRS MUNCHIE (1MB) is a very good clone of Ms Pacman. It has all the original playability plus many extra features, including digitized sound effects, 20 different maze styles, 200 levels and a Top 10 highscore chart. There are many game characters. As well as Mrs Munchie there are six ghosts, The Munchiemator, Happy Bee, Lightning Bolt, Maze Bug plus lots of pick-ups (including the very useful Zap! smartbomb). Joystick response is a little slow but not so as to affect the addictive gameplay. For young children there is a handy Kids Mode featuring slower gameplay, dumber ghosts and fewer bad guys to worry about.

Mrs Munchie is yet another example of a classic coin-op title which is still as enjoyable today as it has always been!

SPACE INVADERS

As the main instigator of the coin-op revolution, Space Invaders is probably the best known coin-op of them all. It is well represented on the ST. Two of the latest versions are Space Invaders and ST Review Invaders

Budgie UK's ***SPACE INVADERS*** is the closest to the original. It features two modes of play. Classic Mode is presented as the original coin-op and Modern Mode features sharper graphics. I liked the Classic Mode a lot - it plays just like the coin-op (except the missiles travel faster) and features almost identical presentation, including the invader designs, spaceships, bases, etc. It's like being back within the rows of Space Invader machines again!

ST REVIEW INVADERS is a colourful version. Animated aliens and a wavy ground level create a "bouncy" feel to the game. There are also some digitized sound effects. Very playable.

GALAXIAN

Sinister Developments have also produced ***GALAXIAN***, a clone of the original coin-op in which you had to fight off waves of invaders which swooped at you in formation. Galaxian was always a tough game to play - much more so than Space Invaders. You had to carefully manoeuvre your ship to avoid the swooping aliens. Also, you could only fire one missile at a time. This made pinpoint accuracy a necessity.

Sinister's version is as tough as ever. It has all the elements of the coin-op (even the original title design is displayed at the main menu). Be sure to remove the bottom border of the screen (use the Options menu) as this gives

you the full play area.

For another version of Galaxian check out ***INSECTROID***. This is a manic version! The style is different: you must shoot waves of swarming insects. There are many different types of insect (both big and small!) and sampled sound effects are used to good effect. Furious action!

ROBOTRON

Robotron was a fast-action arcade game in which you had to defend the human race against the Robotron armies. This involved racing about the screen rescuing humans and blasting the waves of Grunts, Hulks, Electrodes, Progs and Spheroids. The gameplay was a killer!

In 1991, Jeff Minter decided to create the definitive version of Robotron. The result was ***LLAMATRON***, which he described as, "'90s ultra-violence in its very essence!". Llamatron is packed with sampled sound effects. There are screams, explosions and animal sounds galore! The gameplay is pure Jeff Minter! You control a "totally hard laser-spitting llama". The humans have been replaced with sheep, llamas, camels and goats! The enemies are now Coca Cola cans, house-plants, hamburgers, etc. Even some original Space Invaders make an appearance! Add to this lots of power-ups and you have a real cracker of a game!

The ultimate objective of Llamatron is to destroy the Ozric Tentacle of level 99 and get to Herd Heaven on level 100. Along the way you'll experience software programming at its best. Llamatron is Robotron gone crazy!

CENTIPEDE

Sinister Developments have also authored a version of that 'king of the trackball' coin-op, Centipede. Back in 1982, the 10p's were flowing and the trackballs smoking whenever Centipede was in the arcade. Centipede was basically Space Invaders in the garden. Instead of killing aliens, you had to kill centipedes, scorpions, spiders, etc. It was faster than most shoot-em-ups of the time and very addictive to play!

Sinister's ***CENTIPEDE*** (1MB) is a very professional piece of programming. It captures the whole feel of the arcade coin-op. The action is smooth and the presentation polished. Great stuff!

AND THERE'S MORE...

Check the Page 6 ST Library for details of more classic coin-ops. You can never have too much of a good thing!

ROUND-UP RATINGS:

OFFENDER (1MB) (ST662)	83%
CYBERNETIX (ST885)	84%
ASTEROIDS (from ST745)	87%
PACMAN ST (ST515)	88%
HACMAN II (1MB) (ST540)	88%
MRS MUNCHIE (1MB) (from ST804)	79%
SPACE INVADERS (from Budgie 24)	82%
ST REVIEW INVADERS (from ST888)	74%
GALAXIAN (from ST888)	82%
INSECTROID (ST860)	75%
LLAMATRON (ST500)	96%
CENTIPEDE (from ST888)	80%

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